#### **MJPPS-140**

## Educational intervention on knowledge of hypertension and lifestyle/dietary modification among hypertensive patients attending a tertiary health facility in Nigeria

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Keywords: Dietary, education, hypertension, knowledge, lifestyle, pharmacist

Abstract: Patients' knowledge of hypertension and treatment has been found to affect health outcomes of hypertension. This study aimed to assess the impact of therapeutic patients' education on knowledge of hypertension and lifestyle/dietary modification among hypertensive patients in Nigeria. The study was conducted among 317 hypertensive patients randomized into controlled and intervention groups (158 vs 159, respectively) between March 2021 and February 2022. Baseline knowledge of the patients was assessed and intervention was provided for the intervention group with a structured educational program at a baseline and six months. Descriptive data were presented with a frequency table in percentage while the chi-square test and univariate logistic regression were used to determine the association between categorical variables. Out of the total number of 318 patients, 275 completed the study (response rate: 86.8%) with 136 in the control group and 139 in the intervention group. The mean age of the patients was 59.5 ( $\pm$ 12.5) and patients > 60 years (49.5%) were the most frequent age category. The baseline knowledge score of hypertensions was 9.8 ( $\pm$ 2.6) and 9.3 ( $\pm 2.6$ ) on a scale of 16 points in the control group and intervention group, respectively (P = 0.060) while at six months 11.9 ( $\pm 2.3$ ) vs 10.8 ( $\pm 2.4$ ) (P < 0.001) and 12 months 12.6 ( $\pm 2.5$ ) vs 9.5 ( $\pm 2.0$ ) (P < 0.001), respectively. Knowledge of lifestyle/dietary modification in the control group and intervention group at baseline was 7.0 ( $\pm 2.1$ ) and 6.6 ( $\pm 2.0$ ), respectively, while at six months 7.5 ( $\pm 1.5$ ) vs 9.9 ( $\pm 1.3$ ) (P < 0.001) and at 12 months 7.2 (±1.5) vs 10.4 (±1.2), respectively. Marital status, body mass index, and family history of hypertension were associated with knowledge of hypertension and lifestyle/dietary modification (P < 0.001). The educational intervention provided was found to be associated with a significant improvement in knowledge of hypertension and lifestyle/dietary modification. The marital status of the patients, body mass index and family history of hypertension influenced patients' level of knowledge.

**Reference:** Jamiu et al. (2024) Educational intervention on knowledge of hypertension and lifestyle/dietary modification among hypertensive patients attending a tertiary health facility in Nigeria. Mediterr J Pharm Pharm Sci. 4 (1): 1-11. [Article number: 140]. https://doi.org/10.5281/zenodo.10535778

#### MJPPS-141

## Evaluation of student's perception and attitudes towards switching from in-class to online teaching in the era of COVID-19

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Keywords: COVID-19 pandemic, hybrid learning, in-class learning, online learning, university students

Abstract: Worldwide, the focus on online learning during the era of the COVID-19 pandemic faced many challenges. The present study aimed to evaluate the preferences, perceptions, and attitudes of university students toward various strategies of learning. A pre-piloted cross-sectional survey was posted on the internet in Arabic and English language. Questions covered the demographical characteristics of the participants and their preferences and perceptions of various learning strategies. We received 270 questionnaires from various countries. The majority (n=199, 73.7%) of respondents were from the University of Sharjah, United Arab Emirates, with n=125 (46.3%) participants from the College of Pharmacy. The majority (n=198, 73.0%) of respondents were females, Arabs (n=262, 97.0%), living with their families (n=208, 77.0%), and with only the father working (n=174, 64.0%). Preference was, for online learning (n=145, 53.7%) as compared to inclass learning (n=119, 44.1%). More students (n=110, 40.7%) claimed improvement in their grades with online learning but 62 of students (23.0%) stated that their grades were worsened. Student's performance in online exams was similar to that in paper exams. The majority (n=168, 62.2%) of students claimed that their overall expectations of online learning were not the same as those for in-class learning. 50.0%-60.0% of respondents believed that in-class learning allows them to learn more effectively, and achieve the best work preparation, best exam performance, and best education value, and they were more likely to recommend it. Despite the disadvantages of online learning, it remains the future strategy for higher education. Appropriate planning of courses, and helping students by reducing digital inequity, if any, would certainly prove satisfactory for the millennial generation of students.

**Reference**: Sharif et al. (2024) Evaluation of student's perception and attitudes towards switching from in-class to online teaching in the era of COVID-19. Mediterr J Pharm Pharm Sci. 4 (1): 12-21. [Article number: 141]. https://doi.org/ 10.5281/zenodo.10565075

#### MJPPS-142

## Comparative composition, antioxidants, and antimicrobial effects of 3- and 7-day fermented seeds of *Nigella sativa*

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Keywords: Bioactive components, fermentation, GC-MS, Nigella sativa, Staphylococcus aureus

Abstract: The significance of fermentation is gaining more relevance due to the need for better preparation of plants, the desire for better plant constituents, and the aim for the preservation of medicinal plants. Hence, this study sets out to determine and compare the pH, proximate composition, chemical constituents, antioxidant, and antimicrobial effects of 3-day and 7-day fermented seeds of Nigella sativa. The fermentation of the seed was done for 3 and 7 days using 2.5% sugar. The pH of the sample declined from 3.5 to 3.45 during the fermentation. The proximate composition (moisture, ash, lipid, protein, and carbohydrates) was higher for the 3-day fermented sample while fiber was higher for the 7-day sample. The phytochemical constituents (tannins, saponins, phenols, alkaloids, flavonoids, phytates, oxalates, terpenoids, steroids, and glycosides) were higher for the 3-day than the 7-day sample. The Gas Chromatography-Mass spectrometry technique showed peaks that were characterized as 17 and 20 constituents on days 3 and 7 of the sample, respectively. The antioxidant capacity (ranging from 35.50% to 82.69% for the 3-day and from 37.50% to 84.99% for the 7-day sample) varies by the increasing concentration (7.81 mg/mL to 1000 mg/mL) of the sample. The diameter of zones of inhibition tested at different concentrations (25 mg/mL, 50 mg/mL, and 100 mg/mL) showed varying degrees of activity against Proteus vulgaris and Staphylococcus aureus. The zones obtained were higher 8-10 mg/mL against Staphylococcus aureus and 10-12 mg/mL against Proteus vulgaris for the 7day fermented sample while 8.0 to 9.0 mg/mL was obtained for the 3-day fermented against Staphylococcus aureus and 8.0 to 10.0 mg/mL against Proteus vulgaris. Overall, the results of this study indicated that fermentation contributed to enhancing the bioactive components and antioxidant capacity of the fermented seeds of N. sativa thereby supporting the use of fermentation in the production of value-added functional foods.

**Reference:** Falana et al. (2024) Comparative composition, antioxidants, and antimicrobial effects of 3- and 7-day fermented seeds of *Nigella sativa*. Mediterr J Pharm Pharm Sci. 4 (1): 22-34. [Article number: 142]. https://doi.org/ 10.5281/zenodo.10627412

#### MJPPS-143

#### Hypotensive effect of yeast in the hypertensive rat model

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Keywords: Carotid artery cannulation, dexamethasone, hypertensive rat

**Abstract:** Elevated arterial blood pressure is the most important public health problem in developed countries. It often leads to lethal complications if left untreated. Brewer's yeast is celebrated for its various beneficial effects, including a possible hypotensive effect. Thus, the anti-hypertensive effects of brewer's yeast were investigated. The hypertensive model was done by a once-weekly intraperitoneal injection of dexamethasone at a dose of 25 mg/kg combined with drinking a 1.0% sodium chloride solution containing 0.2% KCl and 2.0% glucose for six weeks. The blood pressure was measured by the rat carotid artery cannulation preparation. Different doses of brewer's yeast dissolved in distilled water were injected into the internal jugular vein, with measurement of blood pressure at each time. To explore the mechanism of the hypotensive effect of yeast, the yeast cardiac effect was verified by the use of isolated perfused rabbit heart preparations using different antagonists. It was found that dexamethasone elevated systolic blood pressure to 178.3±11.6 and diastolic blood pressure to 133.3±16.6 from normal levels of 115.0±9.1 for systolic and 74.0±4.1 for diastolic. The gradual increase in intravenous yeast doses ranging from 0.05 to 0.40 effectively lowered systolic and diastolic blood pressure in rats with normal pressure, bringing them to approximately 80.0±05.6 mmHg for systolic and 40.0±3.5 mmHg for diastolic. While doses exceeding 0.04 resulted in a drop in systolic pressure to 60.0±3.9 mmHg, diastolic pressure became unrecordable. The administration of the 0.20 dose resulted in unrecordable blood pressure. In hypertensive rats, a decrease in blood pressure was observed with doses ranging from 0.60-1.0 mg, leading to a reduction to 110.0±2.8 mmHg for systolic and 52.0±9.9 mmHg for diastolic pressures. Doses exceeding 1.0 mg further lowered systolic and diastolic pressures to 20.0±3.9 mmHg. There was a mild increase in heart rate with no change in cardiac force of contraction. This effect was not mediated through beta, calcium receptors, or the histamine effect. The findings show that the yeast has a dose-dependent blood pressure-lowering effect. The mechanism of the chronotropic effect is possibly due to its direct action.

**Reference:** Alfituri et al. (2024) Hypotensive effect of yeast in the hypertensive rat model. Mediterr J Pharm Pharm Sci. 4 (1): 35-41. [Article number: 143]. https://doi.org/10.5281/zenodo.10607574

#### MJPPS-144

## Evaluating the effects of insulin, metformin and glibenclamide on the pups' prefrontal cortex and oxidative stress markers of streptozotocin-induced diabetic pregnant rats

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Keywords: Cerebral cortex, gestation diabetes mellitus, glibenclamide, insulin, metformin, streptozotocin

Abstract: There is an upsurge in gestational diabetes mellitus with many devastating consequences for the mother and developing fetus. Insulin therapy remains a mainstay. However, insulin is expensive and comes with the pain of multiple injections. Therefore, there is a need to explore commonly administered oral hypoglycemic agents to cater for the increasing gestational diabetes mellitus-associated neurological complications. This study assesses the effects of glibenclamide, metformin and insulin on the pups' prefrontal cortex in diabetic pregnant rats. 35 sexually matured adult female rats weighing between 120 g and 160 g were used and assigned into five groups (A to E) of seven rats each group. Diabetes was induced by streptozotocin (45 mg/kg and 35 mg/kg; ip). Hyperglycemic rats were treated with insulin (1.0 UI daily), metformin (200 mg/kg/day) and glibenclamide (0.6 mg/kg/day). Body weight and blood glucose levels were evaluated. Rats were sacrificed at 18-day gestation, the pups were harvested, and their brains were processed for tissue oxidative stress markers and various histological examinations. Glibenclamide and metformin caused a significant blood glucose reduction at 37.9% and 40.7%, respectively, compared to the insulin group (33.09%). There was no significant difference in the body-organ ratio in rats treated with metformin when compared to rats treated with insulin. Metformin and glibenclamide had a significant increase in tissue glutathione reductase and a decrease in malondialdehyde compared with insulin and diabetic control groups. The pups' prefrontal cortex showed degenerated neuronal cells in the diabetic control animals. The diabetic rats treated with metformin and glibenclamide showed improved pyramidal neurons compared with diabetic and insulin groups. This study suggests that metformin and glibenclamide glycemic control may prevent and improve antioxidant enzymes and reverse some neurotoxic effects caused by streptozotocin-induced diabetes in rats.

**Reference:** Sangoyomi et al. (2024) Evaluating the effects of insulin, metformin and glibenclamide on the pups' prefrontal cortex and oxidative stress markers of streptozotocin-induced diabetic pregnant rats. Mediterr J Pharm Pharm Sci. 4 (1): 42-51. [Article number: 144]. https://doi.org/10.5281/zenodo.10627454

#### **MJPPS-145**

## A collective review of the synthetic approaches disclosed in prior patents to synthesize the renowned drug, Lamotrigine

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Keywords: Lamotrigine, synthesis, cyanation, condensation, cyclization, recrystallization

**Abstract:** In this review work, we have extracted the essential details from prior patents about the synthesis of popular drug Lamotrigine. This initiative will provide a platform for the global researchers to invent new or innovate over the existing synthetic routes to isolate Lamotrigine with good yield and purity. The details of patents were sourced from "Google patents" search tool and the process specific details were elaborated with reaction schemes. In this context, twenty-four reactions schemes were tabulated for the better understanding of the disclosed ventures. The entire chronological exfoliation of details on the synthesis of Lamotrigine provides a clear evolutional vision of its synthetic flourish towards drug commercialization.

**Reference:** Saralaya et al. (2024) A collective review of the synthetic approaches disclosed in prior patents to synthesize the renowned drug, Lamotrigine. Mediterr J Pharm Pharm Sci. 4 (1): 52-74. [Article number: 145]. https://doi.org/ 10.5281/ zenodo.10698581

#### **MJPPS-146**

## Influence of *Phoenix dactylifera* leaf extract on doxorubicin-induced nephrotoxicity and hepatotoxicity in rats

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Keywords: Doxorubicin, hepatotoxicity, palm leaf, Phoenix dactylifera, nephrotoxicity

Abstract: The research into plant is used to search for new agents with pharmacological activities. This study seeks to evaluate the effects of the palm leaf methanolic extract against nephrotoxicity, hepatotoxicity, and weight loss induced by chemotherapeutic drug doxorubicin in a rat's model. Five groups of rats (n= 4 in each group) were treated with or without doxorubicin (3.0 mg/kg/day, ip) and with palm leaf methanolic extract (400 mg/kg/day or 1200 mg/kg/day, po), followed by evaluation of renal and hepatic biochemical markers. The findings obtained indicated that palm leaf methanolic extract exerts protective effects against doxorubicininduced nephrotoxicity and hepatotoxicity. Doxorubicin significantly elevated renal function markers, namely creatinine, uric acid and urea, however, these biomarkers remained within normal levels after treatment with palm leaf methanolic extract (400 mg/kg/day) as compared to the control group. Treating the rats with doxorubicin and palm leaf methanolic extract at doses 400 mg/kg/day and 1200 mg/kg/day, counteracts the doxorubicin-induced elevation of serum creatinine and uric acid compared to the doxorubicin group. Doxorubicin also significantly increased hepatic function tests namely alanine and aspartate aminotransferase, gamma-glutamyl transferase, and bilirubin as compared to the control group. In addition, treating the rats with palm leaf methanolic extract doses and doxorubicin caused a significant decrease in the serum levels of hepatic markers compared to the doxorubicin group. Doxorubicin treatment resulted in a weight loss of 34.1%, the weight loss caused by doxorubicin was prevented by treating the rats with the extract at 1200 mg/kg/day as compared to their baseline body weight. Thus, the results of the current study suggest that the active constituents present in the palm leaf methanolic extract have a protective effect against hepatotoxicity, nephrotoxicity and weight loss-induced by doxorubicin.

**Reference:** Diab et al. (2024) Influence of *Phoenix dactylifera* leaf extract on doxorubicin-induced nephrotoxicity and hepatotoxicity in rats. Mediterr J Pharm Pharm Sci. 4 (1): 75-83. [Article Number: 146]. https://doi.org/10.5281/zenodo. 10711913

#### **MJPPS-147**

#### Prevalence of acute infectious hepatitis in Eastern Libyan pediatrics

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Keywords: Children's hospital, retrospective study, viral hepatitis

Abstract: Viral hepatitis is one of the main public health concerns around the world. Even though infection management techniques have been implemented over the last few decades, eradication or significant reduction has remained a mystery. The purpose of this study is to look into the prevalence of acute infectious hepatitis in the East of Libya and how the type of virus, age, gender, clinical manifestations, and outcome are related. This is a hospital-based retrospective study. The data on the frequency and distribution of viral hepatitis based on age, gender, seasonal, clinical, and ultrasound findings, and the outcomes during a period of two years from January 2020 to December 2021 were collected and analyzed. Of the 0.39% (72 cases) of total hospital admissions (18340) under the age of 15 years old for acute infectious hepatitis patients, the most common age group was 5-12 years (79.6%). Winter accounted for 41.6% of all the cases. Females made up 65.3% of the cases. Jaundice was the most prevalent presentation (87.5%). Hepatomegaly was seen in 83.3% of the patients. Most of the cases have mild hyperbilirubinemia (5-9 mg/dL, 75.0%). Approximately 1/5<sup>th</sup> of the patients' serum glutamic-oxaloacetic transaminase (SGPT), and nearly 1/3<sup>rd</sup> of the patients' SGPT levels were in the range of 1000-2000. One patient's hepatitis C was positive, one patient's hepatitis B was positive, and 97.2% were positive for hepatitis A. 88.8% of the individuals recovered without complications, whereas 11.1% showed symptoms of hepatic failure but recovered. The present study indicates that acute hepatitis A is more prevalent, especially in the winter. Those who are females and 5-12 years of age were more affected by acute viral hepatitis in Libya.

**Reference:** Alabeedi et al. (2024) Prevalence of acute infectious hepatitis in Eastern Libyan pediatrics. Mediterr J Pharm Pharm Sci. 4 (1): 84-92. [Article Number: 147]. https://doi.org/10.5281/zenodo.10723899

#### **MJPPS-148**

# Jobelyn<sup>®</sup> ameliorates anxiety response and oxido-inflammatory markers induced by tramadol use and discontinuation in rats

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Keywords: Abuse, anxiety response, inflammation, motor activity, oxidative stress, tramadol

Abstract: Jobelyn® is a multi-functional natural dietary supplement made from Sorghum bicolour with very high anti-oxidant and anti-inflammatory capacities. The study investigated the role of Jobelyn® in the attenuation of oxido-inflammatory markers induced by tramadol use, abuse and discontinuation over 17 days in rats. The experimental observational study was carried out using male adult albino rats weighing between 100 and 170 g. The experimental design involved five groups. Rats were randomly divided into groups of five, consisting of group 1 (normal control rats), and group 2 (rats treated with tramadol at 40 mg/kg/day) were administered for 10 days and discontinued for seven days. Group 3 administered incremental doses of tramadol from 40 mg/kg/day to 100 mg/kg/day over 10 days and discontinued for seven days. A similar treatment protocol was administered for group 4 and group 5 but were treated with Jobelyn<sup>®</sup> at a dose of 200 mg/kg/day at the discontinuation phases for seven days. Behavioral assessments (elevated plus maze model of anxiety and open field model of locomotor activity) and biomarkers of oxido-inflammatory stress were assessed. Tramadol-treated groups had significant anxiety responses and locomotory deficits in comparison to the control group. Tramadol-treated groups had significant elevations of nitrites and malondehyde and reduced enzymatic markers such as catalase, glutathione, reduced glutathione, superoxide dismutase, G-stransferase, glutamic acid decarboxylase and increased activity of acetylcholinesterase when compared to control group. Administration of Jobelyn<sup>®</sup> attenuated the responses and ameliorated the oxido-inflammatory biomarkers similar to levels in control group. Tramadol induces oxido-inflammatory stress markers in the prefrontal, striatum and hippocampus in rats. Anxiety and locomotory behavioral actions on tramadol treatment were elevated despite discontinuation for seven days. Thus, Jobelyn® at 200 mg/kg/day ameliorated oxido-inflammatory markers induced by tramadol and decreased anxiety responses in albino rats.

**Reference**: Afe et al. (2024) Jobelyn<sup>®</sup> ameliorates anxiety response and oxido-inflammatory markers induced by tramadol use and discontinuation in rats. Mediterr J Pharm Pharm Sci. 4 (1): 93-110. [Article number: 148]. https://doi.org/10.5281/zenodo.10728692

#### **MJPPS-149**

## Knowledge and attitudes regarding topical misuse of corticosteroids in Libya

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Keywords: Aware, female, hyperpigmentation, lightening, self-medication, topical corticosteroid

Abstract: Prescription drug misuse has emerged as a significant problem over the past decade, particularly topical corticosteroids for skin lightening. This study aimed to assess the misuse of topical corticosteroids among the female population in southern Libya; to determine prevalence, awareness, attitude, and practice regarding this drug misuse. A descriptive, cross-sectional questionnaire was distributed on January 2022 to females aged between 16-45 years old in southern Libya. Out of 200 distributed questionnaires, 155 were returned with a response rate of 77.5%. The majority of the participants were aged 16-25 years (n=138, 89.0%) and over two-thirds of participants, said they obtained lightening products containing cortisone from pharmacies (n=107, 69.0%) while 36 participants indicated they obtained these products from cosmetic shops (23.2%). More than three-quarters of the participants said they were aware that they should read product ingredients (n=120, 77.4%). Just over one-quarter of respondents indicated they used the product on their face almost daily (n=41, 26.5%) while 28 participants denied using it (18.1%). The most common source of information about topical corticosteroids among participants was the Internet (n=51, 32.9%), followed by dermatologists (n=41, 26.5%), and pharmacists (n=31, 20.0%). Almost half of respondents were aware that topical corticosteroids can cause harmful effects (n=75, 48.4%). The most common indications reported for using topical corticosteroids were whitening (23.3%), and acne treatment (54.2%). Over two-thirds of participants, declared they would not use topical lightening products if they contained corticosteroids (n=107, 69.0%). In a similar attitude, nearly a third of participants stated that they would never use corticosteroid medications again if they knew about the negative effects of whitening (n=51, 32.9%). The majority of females, (87.7%), concur that only pharmacies should be able to sell and prescribe topical corticosteroid medications. The study's findings indicate that topical corticosteroids are frequently misused and that to lessen contraindications, especially for prolonged use, it is imperative to provide basic care to females who continue using topical corticosteroids in public or unlicensed marketing settings.

**Reference:** Alkilane et al. (2024) Knowledge and attitudes regarding topical misuse of corticosteroids in Libya. Mediterr J Pharm Pharm Sci. 4 (1): 111-120. [Article number: 149]. https://doi.org/10.5281/zenodo.10732533

#### **MJPPS-150**

## Chiral screening approach of atorvastatin diastereomers by HPLC method

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Keywords: Atorvastatin, Chiralcel® OD-RH column, diastereomers, HPLC, hypolipidemic

Abstract: The current study seeks to develop and validate a high-performance liquid chromatography method for atorvastatin diastereomer separation and analysis. In particular, we wish to identify the many diastereomers in atorvastatin, which can help us to better understand their pharmacological properties and provide significant information for pharmaceutical applications. Atorvastatin was chromatographed on a Chiralcel<sup>®</sup> OD-RH column and n-hexan-2-propanol (95:05 v/v) as the mobile phase, with an injection volume of 10  $\mu$ L. The solution was pumped at a continuous flow rate of 1 mL/min, with a detection wavelength of 260 nm. The investigation found two peaks with retention times of 3.23 and 3.85 min, respectively. The resolution, capacity, and selectivity factors obtained were Rs = 1.2, k'1 = 3.50, k'2 = 4.37, and  $\alpha = 1.24$ .

**Reference:** Hamache et al. (2024) Chiral screening approach of atorvastatin diastereomers by HPLC method. Mediterr J Pharm Pharm Sci. 4 (1): 121-125. [Article number: 150]. https://doi.org/10.5281/zenodo.10814722

#### MJPPS-151

#### Effect of resveratrol on total protein and albumin in type 2 diabetes wound healing in rats

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Keywords: Diabetes mellitus, wound healing, resveratrol, globulin, total albumin

**Abstract:** Resveratrol, a polyphenol predominantly present in red grapes, has attracted interest due to its possible health advantages. The anti-inflammatory, antioxidant, and vasodilatory properties of this substance indicate that it may have a beneficial effect on wound healing in individuals with diabetes mellitus. This study aims to determine the role of resveratrol on type 2 diabetic wound healing on total protein and albumin levels in rats. 20 male adult Albino Wistar rats were rendered diabetic using a high-fat diet and an alloxan injection (120 mg/kg). The rats were grouped into four: non-diabetic control group (negative control), diabetic control group (positive control), diabetic treatment group 1 (resveratrol: 10 mg/kg) and diabetic treatment group 2 (resveratrol: 20 mg/kg). Excisional wounds were created and monitored for wound closure over a defined treatment period of 14 days. Studies were conducted and expressed using physical and biochemical indices. The data demonstrated wound healing activities *via* biochemical indices, and histological and macroscopic methods. There was a difference in fasting blood glucose between the diabetic control group with the treatment groups. There was a difference between the diabetic control group compared to the group treated with resveratrol 10 mg/kg and 20 mg/kg in the weight of the rats. There was no significant acceleration in total albumin and globulin levels in the diabetic wounded group treated with resveratrol (10 mg and 20 mg). The

**Reference:** Yusuf et al. (2024) Effect of resveratrol on total protein and albumin in type 2 diabetes wound healing in rats. Mediterr J Pharm Pharm Sci. 4 (1): 126-132. [Article number: 151]. https://doi.org/10.5281/zenodo.10827045

#### MJPPS-152

## The seroprevalence of IgM and IgG antibodies production among expected COVID-19 patients: A retrospective cohort study

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Keywords: COVID-19, IgG, IgM, Libya, SARS-CoV-2

Abstract: Antibody tests can identify people with a resolving or past severe acute respiratory syndrome coronavirus 2 infection and thereby help researchers and public health experts better understand the epidemiology of severe acute respiratory syndrome coronavirus 2. This study is a retrospective study that included 187 Libyan individuals, who attended Attshkhesy (the diagnostic) laboratory in Alkhoms City, Libya, between January 01, 2021, and August 28, 2021. The mean ages of males and females were 48.8 and 46.8, respectively. The study utilized the CLIA quantitative antibody test. To perform the CLIA quantitative antibody test, a high throughput assay apparatus known as the YHLO-iFlash 1800 Chemiluminescence Immunoassay Analyzer was utilized, along with assay reagents called iFlash-SARS-CoV-2 IgM/IgG (manufactured by YHLO Biotech, Shenzhen, China). In female subjects, the concentration of severe acute respiratory syndrome coronavirus 2 IgM was higher than that of IgG in all age groups. Interestingly, in male subjects, the results showed the opposite, where the concentration of severe acute respiratory syndrome coronavirus-2 IgG was much higher than that of IgM in all age groups. When male data were plotted against the female data, the concentration of severe acute respiratory syndrome coronavirus 2 IgM in females was much higher than that of IgM in males in all age groups. Merged IgM-male and IgM-female results showed that IgM concentrations were higher in females than males at all age groups, which means that the incidence of recent COVID-19 infection was higher in females than in males. On the other hand, the IgG antibody prevalence in females was always higher than in males except in age groups 41-50 years and 51-60 years, which can be used as an indicator of high acquired immunity among females due to possible reinfection of females with COVID-19 virus.

**Reference:** Al-osta et al. (2024) The seroprevalence of IgM and IgG antibodies production among expected COVID-19 patients: A retrospective cohort study. Mediterr J Pharm Pharm Sci. 4 (2): 1-8. [Article number: 152]. https://doi.org/10.5281/zenodo.10946622

#### MJPPS-153

### Community response to genetically modified food products in Libya

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Keywords: Biotechnology, genetically modified products, food

**Abstract:** Libya is a nation that is exceptionally subject to sustenance imports. Society should ensure that biotechnology is being used to address the districts they consider imperative. They must verify that focal points are decently flowed and available to all. This study followed the quantitative approach, which allows concluding results based on a wide sample of judgment. This study was based on the analytical type of research; this method used some statistical tools to analyze the study data. The questionnaire comprises four sections. The findings revealed that there is a significant and positive relationship between perceived risk, perceived quality, and the intention of genetically modified products. Further, the beta coefficient for variables that perceived risk, and perceived quality are 0.206, 0.262, and a significant at level 5.0%. Based on the findings, the highest contribution toward intention on genetically modified products is from the perceived quality, followed by the perceived risk variable respectively. While the social norms factor showed a non-significant contribution to the respondents' intention on genetically modified products. This study revealed a significant relationship between the perceived risk factor and the intention on genetically modified products with r=0.37 ( $p\leq0.01$ ), which indicated that the perceived risk of genetically modified products impacts the respondent intention on genetically modified products intereases, respondent should avoid buying genetically modified products.

**Reference**: Mohammed et al. (2024) Community response to genetically modified food products in Libya. Mediterr J Pharm Pharm Sci. 4 (2): 9-14. [Article number: 153]. https://doi.org/10.5281/zenodo. 11111150

#### **MJPPS-154**

## Clinical profile of Libyan patients admitted with diabetic ketoacidosis

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Keywords: Blood pressure, diabetes ketoacidosis, diabetes mellitus, high dependent unit, plasma glucose

Abstract: Diabetic ketoacidosis is a serious, medical emergency that can be fatal but treatable, we aimed to evaluate the clinical profile of patients admitted with diabetic ketoacidosis. This case series study enrolled 213 non-pregnant adult and adolescent patients admitted with diabetic ketoacidosis at Tripoli Diabetes Hospital from January to September 2023. Demographic data, clinical characteristics, laboratory findings, precipitating factors, and patient outcomes were extracted from medical records and analyzed. Type 1 diabetes mellitus was present in 187 (87.8%) of patients, the age range 11-84 years, (30.26 $\pm$ 13.28), with 130 patients  $\leq$ 30 years old (61.0%), females accounting for 110 of the patients (51.6%), 109 had a diabetes duration of less than 10 years (51.2%). The most common precipitating factor was insulin omission 92 (43.2%) in patients with known diabetes mellitus, whereas, diabetic ketoacidosis as the first presentation of diabetes mellitus in 24 patients (11.7%), systolic blood pressure ranged 50-160 mmHg (112.82±16.19), diastolic blood pressure varied 30-100 mmHg (70.24±11.32). Plasma glucose at presentation ranged 183-1494 mg/dl (462.92±169.85), with Euglycemic diabetic ketoacidosis 100-249 mg/dl were in nine patients (4.2%), whereas most of cases (135 patients, 63.4%) present with plasma glucose 250-500 mg/dl, while hyperosmolar status (≥701 mg/dl) were present in 13 patients (6.1%). Venous pH varied from 6.7-7.42 (7.13±0.14), 132 (62.0%) patients presented with pH <7.24, while severe acidosis was pH < 7 in 32 of patients (14.6%), serum bicarbonate with  $10.93\pm4.95$ , severe (<5 mmol) in 91 patients (42.7%) and moderate (5-10 mmol) were in 79 patients (37.08%). The mean length of hospital stay was 3.33 days, with an average of 2.11 days spent in the high-dependent unit. Serum potassium varied from 2.4-6.7 meg/L with 3.66± 0.63, most common complications of diabetic ketoacidosis treatment were hypokalemia observed in 82 (35.7%) of cases, and hypoglycemia was detected in 41 patients (19.2%). 170 patients were discharged in good condition (79.8%), and 17.8% of patients were transferred to another hospital to receive further management for co-morbid diseases with diabetes after controlling their hyperglycemic crises. The majority of patients presented with the critical status of diabetic ketoacidosis. The findings emphasize the importance of patient education about prevention measures prompt presentation to the hospital, and clinicians' awareness for early and aggressive treatment of hyperglycemic crises.

**Reference:** Alfoghi et al. (2024) Clinical profile of Libyan patients admitted with diabetic ketoacidosis. Mediterr J Pharm Pharm Sci. 4 (2): 15-22. [Article number: 154]. https://doi.org/10.5281/ zenodo.11154992

#### **MJPPS-155**

## Effects of *jatropha curcas* root extracts on the metabolic profile of mature female rats

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Keywords: J. curcas, metabolic effects, hyperlipidemia, hyperglycemia

**Abstract:** Extracts from *Jatropha curcas*, a tropical shrub, serve as multi-purpose treatments in folk medicine. Previous studies have shown conflicting reports of the metabolic effects of the extract of this plant. This study assessed the effects of *Jatropha curcas* root extracts on metabolic parameters of female Wistar rats, including body weight, glycemic index, and lipid profile. The root extracts of *Jatropha curcas* in water and 80.0% ethanol were prepared using the Soxhlet extraction method. Four groups of mature rats (groups A-D) were administered varying doses of water or ethanol extracts once daily for 15 days. Another group (group E) served as a control and received no extract. After stopping extract administration, the rats were fasted for 18 hours and sacrificed. A venous blood sample was collected from each group for analysis of lipid and glycemic profiles using spectrophotometry. Statistical analysis was performed and the value with P<0.05 was regarded as significant. No significant difference was observed in the overall body weights of the rats of any group before and after the treatment. Furthermore, the rats that were administered with the root extracts (either water or ethanol) exhibited higher levels of fasting blood glucose and serum lipids compared to the rats in the control group. In conclusion, the root extracts of *Jatropha curcas* predispose the rats to hyperlipidemia action and hyperglycemia action.

**Reference:** Ale et al. (2024) Effects of *jatropha curcas* root extracts on the metabolic profile of mature female rats. Mediterr J Pharm Pharm Sci. 4 (2): 23-29. [Article number: 155]. https://doi.org/10.5281/zenodo. 11173840

#### **MJPPS-156**

## Breast cancer delay presentation among Libyan patients: Demographic and clinical features

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r s s s r s s

Keywords: Breast cancer, clinical stage, help-seeking behavior, patient delay

Abstract: Globally, breast cancer is the most common cancer in women worldwide, it represents about 25.0% of all cancer cases. In developing countries, breast cancer is mainly discovered at a late stage, which has a negative impact on the prognosis. To determine the extent of, and the factors contributing to, delay in breast cancer presentation, and to evaluate the mammography screening practice in breast cancer Libyan women. A descriptive cross-sectional study was carried out on five hundred and one breast cancer patients who attended the Oncology Outpatient Clinic of the Medical Department at Tripoli University Hospital and Tripoli Central Hospital during a period between February and August 2019, after the application of inclusion and exclusion criteria enrolled in the study. The mean age of the patients was 47.35±01.0 years, 55.1% of them were diagnosed in late stage (III and IV), and 30.9% of the patients were presented late (≥3 months). The time interval between the initial breast symptom and first presentation to a clinic ranged between 2<sup>nd</sup> day and up to three years, with a median time of 1.5 months, and the main factor of the delayed presentation to a clinic was a lack of knowledge about symptoms (33.5%). The study revealed a significant association between delayed presentation and older age (P<0.001), low educational level (P<0.001), low family income (P<0.001), unemployed women (P< 0.002), postmenopausal women (P<0.001), patients with negative family history (P<0.05). This study concluded that delayed presentation is found in less than a third of the study population, and lack of knowledge about breast cancer signs and symptoms is a common factor. Age, educational status, family income, unemployed women, menopausal status, and family history of breast cancer were all significant factors for delayed presentation. Improving women's awareness about breast cancer is needed and applying the policy of regular screening mammograms is a useful tool for early diagnosis and early treatment in Libya.

**Reference:** El-Ashouri et al. (2024) Breast cancer delay presentation among Libyan patients: demographic and clinical features. Mediterr J Pharm Pharm Sci. 4 (2): 30-36. [Article number: 156]. https://doi.org/10.5281/zenodo.11224367

#### **MJPPS-157**

# Knowledge, attitude, and practice of patient referral among patent and proprietary medicine vendors in Obio-Akpor, Rivers State, Nigeria

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Keywords: Attitude, barriers, facilitators, knowledge, patent medicine vendor, practice, referral

Abstract: With the limited number of trained healthcare providers in Nigeria, patent and proprietary medicine vendors are inevitable and highly needed especially, in the rural areas for the supply of drugs to treat minor illnesses. The study assessed the knowledge, attitude, and practice of patient referral among patent and proprietary medicine vendors in an area with a limited hospital infrastructure. This cross-sectional descriptive survey was conducted in Obio-Akpor, Rivers State, Nigeria, using a semi-structured questionnaire that measured the participants' socio-demographic characteristics as well as knowledge, attitude and practice of patient referral. Descriptive and inferential analyses were conducted with SPSS version 25. The majority of the respondents had moderate knowledge, attitude, and practice (62.4%, 73.4% and 58.0%, separately) of patient referral. Multivariate analysis carried out to ascertain the relationship between patent and proprietary medicine vendors' background characteristics and level of knowledge, attitude, and practice of patient referral showed a significant inverse relationship between years of experience and odds of having the attributes of interest. Patent and proprietary medicine vendors with three years of experience reported significantly higher odds of adequate knowledge (AOR=178.96; 95% CI=60.15-532.49; p<0.005), attitude (AOR=07.38; 95% CI=03.78-14.40; p<0.005) and practice (AOR=131.56; 95% CI=53.50-323.51; p<0.005) than those with above 10 years of experience after controlling for the effects of other variables. The study showed that most respondents have moderate knowledge, attitude, and practice of patient referral. The respondents were aware of how referrals affected their clients' overall treatment outcome, but they also highlighted factors that confine their referral practices making them suboptimal.

**Reference:** Igboamalu C, Daprim SO (2024) Knowledge, attitude, and practice of patient referral among patent and proprietary medicine vendors in Obio-Akpor, Rivers State, Nigeria. Mediterr J Pharm Pharm Sci. 4 (2): 37-46. [Article number: 157]. https://doi.org/10.5281/zenodo.11391834

#### **MJPPS-158**

## The impact of tablet shape on quality control parameters for metronidazole tablet marketed in Libya

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Keywords: Hardness test, metronidazole, pharmaceutical analysis, shape

**Abstract:** Worldwide, various metronidazole brands are manufactured and are imported to the Libyan market which are considered pharmaceutically equivalent but may differ in characteristics such as shape, packaging, excipients, etc. This issue has become a valuable topic for researchers due to the lack of information on the effective quality of the tablets about their shapes. The purpose of this study was to assess the pharmaceutical quality of two metronidazole tablet brands with different shapes that are available for purchase in Libya and to figure out how the shape differences impact metronidazole tablet quality. For this purpose, two shapes of metronidazole tablets, round and oblong, were used. The quality control characteristic parameters of a tablet, such as its weight variation, content uniformity, hardness, friability, disintegration, and dissolution were evaluated. The procedures described in the United States Pharmacopoeia (USP) were followed for the tests. All round and oblong tablets passed the weight variation, content uniformity, friability, disintegration time, and dissolution tests that complied with the USP specifications, except for the hardness test, which round and oblong tablets failed to pass. The findings indicated that the shape variations do not effect on the metronidazole tablet quality parameters. The choice of shape of a tablet depends on improving its mechanical qualities, its handling convenience, its packing, and its visual appeal.

**Reference:** Saleh et al. (2024) The impact of tablet shape on quality control parameters for metronidazole tablet marketed in Libya. Mediterr J Pharm Pharm Sci. 4 (2): 47-54. [Article number: 158]. https://doi.org/10.5281/ zenodo.11477048

#### **MJPPS-159**

## Knowledge, performance, and awareness towards the use of disinfectant and hand sanitizers during COVID-19 pandemic: a questionnaire-based survey

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Keywords: Awareness, disinfectant use, hand sanitizer composition, health risks, Libya

Abstract: The COVID-19 pandemic has brought to the forefront the critical role of disinfectants and hand sanitizers in preventing the spread of infectious diseases. This study aimed to assess the knowledge, performance, and awareness of individuals regarding the use of these essential hygiene products during the COVID-19 pandemic in Libya, with a focus on the city of Zawia. A structured questionnaire comprising 41 items was utilized to gather data from 200 participants, covering demographics, knowledge about disinfectants and hand sanitizers, performance in utilizing these products, and awareness of their significance. The majority of respondents were female, reflecting a higher awareness and performance level compared to male participants. Social media emerged as a significant source of information, influencing participants' knowledge and practices. Despite a high level of education among participants, significant knowledge gaps were identified, highlighting the need for targeted educational initiatives. The study revealed a marked increase in the use of household disinfectants and hand sanitizers since the onset of the pandemic. However, it also identified high-risk practices, such as mixing chemical products and ingesting alcohol-based hand sanitizers. The findings underscore the importance of ongoing education and awareness campaigns to promote the safe and effective use of disinfectants and hand sanitizers in mitigating the transmission of COVID-19. Addressing these knowledge gaps and promoting proper hygiene practices is crucial for enhancing public health outcomes and reducing the risk of infection in Libya and beyond.

**Reference:** Neser et al. (2024) Knowledge, performance, and awareness towards the use of disinfectant and hand sanitizers during COVID-19 pandemic: a questionnaire-based survey. Mediterr J Pharm Pharm Sci. 4 (2): 55-63. [Article number: 159]. https://doi.org/10.5281/zenodo.11479336

#### **MJPPS-160**

## Body mass index and vitamin D in Libyan women

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Keywords: Age, BMI, lifestyle changes, obesity

**Abstract:** Vitamin D deficiency is a common health problem among Libyan women. Age, gender, inadequate exposure to sunlight, and obesity are common risk factors for this issue. In this study, we randomly examined 40 Libyan women (age: 17.58±10.45, mean±SD, range: 15 years to 65 years). Blood samples were taken from each participant and directly centrifuged and processed on Cobas 411 Automatic Electrochemil-uminescence Immunoassay Analyzer. Vitamin D levels were measured in ng/ml and the mean serum value was calculated for the total. Body weight and height for each participant were taken to calculate the body mass index. The findings revealed that all participants are suffering from vitamin D deficiency with less than 30 ng/ml serum levels. Female participants aged between 55 and 65 years tend to have a less degree of vitamin D deficiency as compared to the other age subgroups with a mean level of 27 ng/ml of vitamin D. This study revealed the association between vitamin D levels are suffer as measured by body mass index, in contrast, it found that overweight participants have higher vitamin D levels as compared to other groups of body mass index.

**Reference**: Walli et al. (2024) Body mass index and vitamin D in Libyan women. Mediterr J Pharm Pharm Sci. 4 (2): 64-68. [Article number: 160]. https://doi.org/10.5281/zenodo.12171291

#### MJPPS-161

### Effect of beverages on the disintegration time of drugs in the tablet dosage form

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#### Keywords: Bioavailability, disintegration, solid dosage form, OTC drugs

Abstract: Disintegration is the most important step for drug bioavailability because after, the disintegration process, the ingredients of solid dosage forms dissolve and become bioavailable. Generally, the tablets and capsules should be taken with a glass of water otherwise the manufacturer gives instructions to use the proper beverage. Several drugs are taken with different forms of beverages to ensure easy swallowing of the tablet, masking the bad taste of the drug and overcoming the drug aftertaste, these beverages can influence the disintegration of the solid dosage form. The most common cold beverages consumed by the Libyan population are juice, milk, and Coca-Cola. These beverages are consumed without awareness of the possible effect of these beverages on drugs, especially over-the-counter drugs such as analgesic, antipyretic, and antiinflammatory drugs that are taken without a prescription. This study aimed to evaluate the influence of three beverages, namely: orange juice, milk, and Coca-Cola on the disintegration time of four over-the-counterdrugs: Panadol, Congestal, Brufen, and Reality Extra using disintegration test of drugs in 0.1 N HCL and in hybrid medium prepared by combination of 150 ml 0.1 N HCL and 550 ml of beverage to simulate *in vivo* condition. The findings show that the orange juice significantly increases the disintegration time of all the investigated drugs. Coca-Cola significantly increases the disintegration time of Reality Extra, and slightly increases the disintegration time of Brufen, Congestal, and Panadol and the full-fat milk significantly increases the disintegration time of Reality Extra and Panadol while slightly increasing the disintegration time for Brufen and Congestal. It is concluded that commonly used beverages affect the disintegration time of the examined over-the-counter drugs. Patients should be advised to take these medications without beverages which may delay the disintegration and the onset of action of the drug.

**Reference:** Majeed SA (2024) Effect of beverages on the disintegration time of drugs in the tablet dosage form. Mediterr J Pharm Pharm Sci. 4 (2): 69-74. [Article number: 161]. https://doi.org/10.5281/zenodo.12571620

#### **MJPPS-162**

## Determination of the structural parameters of Repaglinide in tablet: an antidiabetic drug, using Spectroscopic methods

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Keywords: Repaglinide, FT-IR, NMR-1H, UV

**Abstract:** The spectroscopy area provides molecular-level information about an anti-diabetic drug through qualitative and quantitative analysis, Repaglinide is an antidiabetic medication in the meglitinide class that is used to treat type II diabetes mellitus. The objective of this work was to characterize Repaglinide by using UV spectroscopy (UV), nuclear magnetic resonance (NMR), and infrared spectrometry (FTIR). The UV results showed that the maximum absorption was at 208, 243, and 285 nm. The IR spectra obtained are consistent with those described in the literature. The NMR-1H spectra revealed information about the various hydrogen and carbon atoms in the molecule as well as their chemical surroundings. The provided methods were successfully employed to control a drug with great accuracy and precision.

**Reference:** Haddad et al. (2024) Determination of the structural parameters of Repaglinide in tablet: an antidiabetic drug, using Spectroscopic methods. Mediterr J Pharm Pharm Sci. 4 (2): 75-81. [Article number: 162]. https://doi.org/ 10.5281/ zenodo.12601827

#### MJPPS-163

## Assessment of current community pharmacist labeling practice: A simulated client approaches

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Keywords: Community pharmacist, dispensed medication label, Libya

**Abstract:** The labeling of medications includes the provision of information and instructions as well as a unique identity for the medical product. It is one of the most important sources of information for patients. Good labeling practice is critical to ensuring patients' safe and effective use of products. Misreading the label, insufficient data on the label, inappropriate labeling font, writing style, and placement on the dosage form can all have disastrous consequences. The objective of this study was to assess medication labeling practices among community pharmacists in Libya. A simulated client method (SCM) was used, and the study was carried out in the City of Zawia, where 146 local pharmacies were visited over three months for the investigation (January to March 2023). These visits were made at random, without the pharmacist's knowledge. The findings revealed that all dispensed drugs were not labeled, and none of the practicing pharmacists did not address or explain significant information to the patient in an effective manner, which led to inappropriate and harmful consumption of medications. The absence of dispensed drug labels reduces the patient's knowledge of the necessary information about the medicine, resulting in a treatment deficit or unsuccessful therapy. Thus, more effort should be made by health authorities to instruct pharmacists to use and work according to international labeling standards or to establish local labeling specifications.

**Reference:** Jaaida et al. (2024) Assessment of current community pharmacist labeling practice: A simulated client approaches. Mediterr J Pharm Pharm Sci. 4 (3): 1-6. [Article number: 163]. https://doi.org/10.5281/ zenodo.13254724

#### **MJPPS-164**

## Metformin dosage and renal protection in type 2 diabetes mellitus: Impact on estimated glomerular filtration rate

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Keywords: Cross-sectional study, Libyan population, metformin, renal function, type 2 DM

**Abstract:** Metformin is considered the first-line treatment as a monotherapy for patients with type 2 diabetes mellitus. Emerging evidence suggests that metformin may have a renoprotective role; therefore, understanding the impact of metformin dose and therapy duration on renal function may significantly improve renal outcomes in type 2 diabetes patients. This study aims to investigate the renoprotective effects of metformin by analyzing its dose-dependent impacts on the estimated glomerular filtration rate in patients with type 2 diabetes mellitus. A retrospective cross-sectional study design was used from September 2022 to October 2023. Data from 302 type 2 diabetes patients were collected from patient files at the Benghazi Diabetic Center and the Aljabal Al-Alkdar Diabetic Center, including all with type 2 diabetes mellitus patients on varying doses of metformin. The collected data included age, gender, metformin dose, duration of metformin therapy, urea, and creatinine. Exclusion criteria included patients with significant comorbidities such as chronic kidney disease (other than diabetic nephropathy), liver disease, heart failure, or malignancy; those taking nephrotoxic medications; individuals with recent acute illnesses or surgical procedures; pregnant or lactating women; participants with inadequate medical records; and patients who were non-adherent to metformin therapy. Survival analysis was conducted to evaluate the effect of different metformin doses on the estimated glomerular filtration rate. The study analyzed 302 diabetic patients, of whom 46.0% were male and 54.0% were female. The age was 58.3±11.9 years. The HbA1c was 7.7%±1.3%. The duration of diabetes was 11.4±8.1 years. The creatinine was 1.0±0.9 mg/dL, and the urea was 36.7±23.8 mg/dL. Data analysis revealed a statistically significant difference in survival distribution across the dose groups. Different metformin doses significantly impact the estimated glomerular filtration rate, suggesting that dosage plays a crucial role in maintaining renal function.

**Reference**: Hadiia et al. (2024) Metformin dosage and renal protection in type 2 diabetes: Impact on estimated glomerular filtration rate. Mediterr J Pharm Pharm Sci. 4 (3): 7-14. [Article number: 164]. https://doi.org/10.5281/ zenodo\_13256137

#### **MJPPS-165**

# *Sorghum bicolor*-based supplement reduces oxidative stress and pro-inflammatory cytokines to mitigate rotenone-induced Parkinsonian-like motor dysfunctions in rats

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Keywords: Pro-inflammatory cytokines, motor deficits, oxidative stress, rotenone

**Abstract:** Parkinson's disease is a common movement disorder associated primarily with oxidative stressmediated degeneration of dopaminergic neurons. Earlier studies showed that *Sorghum bicolor*-based supplement (SbS) exhibited antioxidant and neuroprotective activities and might likely rescue the death of dopaminergic neurons in Parkinson's disease. This study examined the effect of SbS on rotenone-induced Parkinsonian-like motor deficits in rats and the involvement of oxidative stress and pro-inflammatory cytokines. Rats were divided into six groups and treated orally with sunflower oil (vehicle-control), rotenone (2.5 mg/kg) alone or in combination with each dose of SbS (50, 100, and 200 mg/kg) and levodopa-carbidopa (10 mg/kg) on an alternate day for 28 days. The changes in motor functions were evaluated on day 28 and the brain concentrations of oxidative stress biomarkers and pro-inflammatory cytokines (tumor necrosis factoralpha and interleukin-6) were determined. Rotenone caused motor deficits by impaired locomotor activity in the open field test and induced catalepsy in the bar test, which were attenuated by SbS. Rats pretreated with SbS had reduced brain levels of malondialdehyde, nitrite, and pro-inflammatory cytokines compared to rotenone controls. SbS mitigated rotenone-induced depletion of reduced glutathione and antioxidant enzymes in the rat brain. The results suggest that SbS ameliorated rotenone-induced Parkinsonian-like motor dysfunctions by reducing neuronal oxidative stress and pro-inflammatory cytokines in rats.

**Reference:** Adeleke et al. (2024) *Sorghum bicolor*-based supplement reduces oxidative stress and pro-inflammatory cytokines to mitigate rotenone-induced Parkinsonian-like motor dysfunctions in rats. Mediterr J Pharm Pharm Sci. 4 (3): 15-26. [Article number: 165]. https://doi.org/10.5281/zenodo.13309953

#### **MJPPS-166**

# Physicians' attitudes, expectations, and experiences about clinical pharmacists and the barriers they have in developing a collaborative relationship with them

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Keywords: Clinical pharmacist, interprofessional collaboration, Libya, physician attitude

Abstract: The purpose of this study was to determine the attitudes, expectations, experiences, and barriers that physicians in Tripoli hospitals experienced when working alongside Clinical Pharmacists (CPs). A descriptive self-administered questionnaire was used for the study, and participants were selected from several Tripoli hospitals. Most of the respondents agreed that CPs are an essential part of patient care teams and that they have the legal authority to review a patient's medication regimen and response. More than half of respondents believe CPs must be responsible for the medications they prescribe to patients. Half of the respondents agreed that CPs should be encouraged to play a more active role in hospitals and other healthcare facilities. The majority of participants agreed that CPs should participate in managing drug side effects and almost half agreed that CPs can contribute to decisions about drug interactions. By a low agreement rate, 42.7% of respondents thought CPs were specially qualified to counsel patients on drug therapy. A similar low trend was observed, with 40.9% agreeing to provide pharmacists with additional responsibility and authority in clinical departments, in contrast, 54.5% expressed their concern about the clinical responsibility of CPs in clinical practice. A minority of physicians agreed that Physicians should consult pharmacists in selecting the best pharmacological treatment. At the same time, the majority think that pharmacists lack clinical skills and 61.8% feel that physicians are unable to communicate effectively with CPs. 43.6% acknowledged that the traditional opposition between the two professions was a barrier to interprofessional collaboration while the absence of pharmacy space in clinical settings was cited by 39.1%. A majority of respondents agreed that physicians and pharmacists may improve their interprofessional collaboration by raising their awareness about it. A minority of respondents thought that laws and regulations governing physician collaboration should be put in place to promote effective collaboration between physicians and CPs. The study discovered that although most physicians endorse the introduction of clinical pharmacy services in hospitals and believe that physicians and pharmacists can collaborate on many tasks, respondents were not as impressed with the CPs' performance and believed that they lacked the professionalism required to carry out clinical responsibilities successfully. To facilitate the growth of clinical pharmacy services, laws and regulations must be put in place.

**Reference:** Alssageer et al. (2024) Physicians' attitudes, expectations, and experiences about clinical pharmacists and the barriers they have in developing a collaborative relationship with them. Mediterr J Pharm Pharm Sci. 4 (3): 27-38. [Article number: 166]. https://doi.org/10.5281/zenodo\_13324209

#### **MJPPS-167**

### Navigating pharmacoeconomics in Libya: Our current landscape

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Keywords: Healthcare services, implementation, pharmacist, pharmacy education

**Abstract:** Pharmacoeconomics (PE) is a relatively newly developed and fast-changing discipline [1]. PE plays a crucial role in healthcare decision-making by evaluating the costs and outcomes of different treatment options. In Libya, however, the implementation of PE evaluations faces various challenges that hinder its effective integration into healthcare systems. This communication analyses the current needs and prospects of PE by examining the challenges in its implementation, the benefits of integrating it into healthcare decision-making, and strategies to enhance its utilization in the country's healthcare landscape. By exploring these different aspects, it is possible to gain a comprehensive understanding of Libya's status and potential advancements in PE. In Libya, the earliest records related to PE trace back to the late 19<sup>th</sup> century, specifically around 1835 during the Turkish colonization. During that time, various documents documented details such as drug prices, direct costs associated with specific diseases, expenditures on essential pharmaceuticals, and annual inventories of health and pharmaceutical institutions [2]. Over the past 80 years since modern Libya's establishment after the colonial era, Libyan authorities have consistently published annual statistical reports. These reports cover expenditures on medicines, pharmaceuticals, and therapeutic materials, as well as the stock levels in healthcare facilities [3]. However, despite this data, there remains a significant lack of literature on PE, with a few exceptions that do not meet the standards expected of PE studies.

**Reference:** Elkami RM (2024) Navigating pharmacoeconomics in Libya: Our current landscape. Mediterr J Pharm Pharm Sci. 4 (3): 39-40. [Article number: 167]. https://doi.org/10.5281/zenodo.13622609

#### **MJPPS-168**

# Effect of antimicrobial susceptibility testing on treating Libyan outpatients with a suspected bacterial infection

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Keywords: Antibiotic selection, antibiotic de-escalation, bacterial resistance, culture, sensitivity test

Abstract: Clinical microbiology serves as a partner to clinicians in the diagnosis and treatment of infectious diseases. Antibiotics are prescribed empirically before the availability of antimicrobial susceptibility testing data, especially when the patient's medical status could deteriorate by suspending the treatment. To investigate the impact of antimicrobial susceptibility testing on the management of outpatients with suspected bacterial infection in Libyan patients, a cross-sectional prospective study concluded on microbial microdroplet culture by including outpatients with suspected bacterial infection, who have done antimicrobial susceptibility testing. Thus, 53 Libyan patients with urinary tract infections and 14 Libyan patients with skin infections were included in this study. Before the availability of antimicrobial susceptibility testing data, 25 patients were appropriately treated while 42 patients were inappropriately treated. After the availability of antimicrobial susceptibility testing data, the number of appropriately treated patients increased to 57 patients. Thus, antimicrobial susceptibility testing improved the management of 41 patients by discontinuing an unnecessary antibiotic in four patients, starting necessary antibiotic therapy in 18 patients, and changing to more appropriate antibiotic in 19 patients. However, the antimicrobial susceptibility testing has no impact on the management of 24 patients and has led to the worsening of the management of two patients. The effect of antimicrobial susceptibility testing of antibiotic de-escalation was assessed in 35 patients; however, antibiotic de-escalation occurred in six patients. Thus, data of antimicrobial susceptibility testing has improved the management of Libyan outpatients with bacterial infection but their role in antibiotic de-escalation was slight.

**Reference:** Mahjoub et al. (2024) Effect of antimicrobial susceptibility testing on treating Libyan outpatients with a suspected bacterial infection. Mediterr J Pharm Pharm Sci. 4 (3): 41-50. [Article number: 168]. https://doi.org/ 10.5281/zenodo.13630840

#### **MJPPS-169**

## Advancements and challenges in the medical treatment of monkeypox: A recent focused review

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Keywords: Antiviral drugs, orthopoxvirus, outbreak management, supportive care, vaccination

Abstract: Monkeypox, an infectious disease caused by the Orthopoxvirus, was identified in humans in 1970. It has recently emerged as a global health concern due to outbreaks beyond its endemic regions in Central and West Africa. This review examines the current state of medical treatments for monkeypox as of 2024, focusing on antiviral agents, immunotherapies, and supportive care measures. Monkeypox manifests with symptoms including fever, rash, and lymphadenopathy, with severe cases more common in immunocompromised individuals. Antiviral therapies such as tecovirimat and brincidofovir are central to treatment strategies, with tecovirimat demonstrating efficacy in alleviating symptoms and reducing viral shedding. Emerging treatment strategies involve novel lipid-based formulations and combination therapies that integrate antivirals with immune-modulating agents. Supportive care remains essential, involving analgesics and antibiotics for secondary infections, while the MVA-BN vaccine plays a critical role in prevention. Research emphasizes the need for a deeper understanding of viral pathogenesis and host immune responses to improve therapeutic and preventive measures. Despite significant advancements, challenges remain, including potential antiviral resistance, disparities in healthcare access, and the necessity for enhanced diagnostic and surveillance capabilities. This review highlights the imperative for ongoing research, international collaboration, and investment in healthcare infrastructure to advance the management and prevention of monkeypox and to prepare for future outbreaks.

**Reference:** Alasbily et al. (2024) Advancements and challenges in the medical treatment of monkeypox: A recent focused review. Mediterr J Pharm Pharm Sci. 4 (3): 51-56. [Article number: 169]. https://doi.org/10.5281/zenodo. 13743553

#### **MJPPS-170**

### Ascorbic acid has an anxiolytic-like effect in the presence of flumazenil in rats

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Keywords: Anxiety, benzodiazepine, drug interaction, GABA, vitamin C

**Abstract:** Ascorbic acid (vitamin C) is a water-soluble vitamin; it is present in the highest concentration in the brain. Ascorbic acid in high doses acts as a potential treatment for various neuropathological and psychiatric conditions. Flumazenil is a benzodiazepine antagonist; it competitively inhibits the activity of benzodiazepine and non-benzodiazepine substances that interact with benzodiazepine receptors site on the GABA/benzodiazepine receptor complex. This study aims to investigate the effect of flumazenil on the anxiolytic action of ascorbic acid using an elevated plus maze model of anxiety in rats. Male Albino Wistar rats weighing between 250 and 320 grams were used. Rats were divided into four equal groups of seven rats each and treated as follows: Group I, the control group received a single dose of 1.0% tween 80; Group II treated with a single dose of 125 mg/kg ascorbic acid; Group III was injected by a single dose of 1.0 mg/kg flumazenil; Group IV received a combination treatment of 125 mg/kg ascorbic acid and 1.0 mg/kg flumazenil. Behavioural measurements using a plus maze were scored 30 min after the administration. The parameters scored are the time spent on the open and closed arms, the lines and number of entries into open and closed arms, and the anxiety measure. Ascorbic acid decreased anxiety measure and increased the total lines and total number of entries; this effect was abolished by the administration of flumazenil with ascorbic acid. Thus, ascorbic acid produces an anxiolytic-like effect in rats; this effect was abolished by flumazenil administration with ascorbic acid. This may indicate that the GABA/benzodiazepine receptor complex has to be stimulated to produce the anxiolytic effect.

**Reference:** Aburawi et al. (2024) Ascorbic acid has an anxiolytic-like effect in the presence of flumazenil in rats. Mediterr J Pharm Pharm Sci. 4 (3): 57-64. [Article number: 170]. https://doi.org/10.5281/zenodo. 13751022

#### **MJPPS-171**

## Chemical characterizations and anti-sickling potential of methanol extract of *Justicia carnea* (flamingo plant)

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Keywords: Justicia carnea, sickle cell, phytochemicals, chromatography

Abstract: Justicia carnea, a plant rich in bioactive compounds, has traditionally been used as a haemoglobin booster by herbal practitioners in rural areas of Edo State of Nigeria. In this study, the methanol leaves extract of Justicia carnea was investigated for its antisickling potential in hemoglobin SS (HbSS) in-vitro by sodium metabisulphite assay and characterized by Gas Chromatography-Mass Spectrometry (GC-MS) and High-Performance Liquid Chromatography (HPLC). Terpenoids, saponins, glycosides, phenolics, flavonoids and alkaloids were present except tannins. Photomicrograph examinations revealed a reduction of sickle cells with a percentage decrease from 37.50%, and 22.22% down to 3.85% with 100 mg/mL crude extract of Justicia carnea at three durations, respectively. Detected compounds from Gas Chromatography-Mass Spectrometry included hexadecanoic acid methyl ester (Retention time (Rt): 21.46, 05.99%) and 9,12-octadecadienoic acid, methyl ester (Rt: 23.567, 02.59%) while the major constituent was phytol (Rt: 23.741, 67.28%). While kaempferol (R<sub>1</sub>: 17.23, 16.72%) was the major component from High-Performance Liquid Chromatography quantification among resveratrol (Rt: 3.7, 13.85%), gallic acid (Rt: 5.88, 3.55%), Justicinol (Rt: 11.85, 01.34%) and phytic acid (Rt 5.06, 01.43 %). These compounds have been cited as physiological agents that reduce inflammation, and oxidative stress and potentially prolong the lifespan of cells across species. The antisickling results from this study corroborate and support the traditional use of the plant in treating patients with sickle cell anemia.

**Reference**: Osamwonyi et al. (2024) Chemical characterizations and anti-sickling potential of methanol extract of *Justicia carnea* (flamingo plant). Mediterr J Pharm Pharm Sci. 4 (3): 65-75. [Article number: 171]. https://doi.org/10.5281/zenodo.13759785

#### MJPPS-172

### Analysis of risk factors on hemoglobin level in Libyan women

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> Keywords: Age, anemia, charcoal, menstruation, pregnancy, vegetarian

**Abstract:** Anemia is a common health problem among Libyan women. Age, heavy menstruation, and pregnancy are vital risk factors for this problem. In this study, we prospectively examined 60 Libyan women all of which were diagnosed with iron deficiency anemia, their hemoglobin levels were less than 10.0 g/dl. The level of hemoglobin is also analyzed for vegetarian and charcoal-eating women. We found that during pregnancy charcoal-eating women exhibit lower hemoglobin levels than non-eating women. Pregnant young women in the age of 17-27 years have the lowest hemoglobin levels than the other age groups. In addition, vegetarians, heavy coffee and tea drinking, and heavy menstruation in non-pregnant women, as well as breastfeeding, strongly lower hemoglobin levels as measured by their complete blood count.

**Reference:** Drbal et al. (2024) Analysis of risk factors on hemoglobin level in Libyan women. Mediterr J Pharm Pharm Sci. 4 (3): 76-80. [Article number: 172]. https://doi.org/10.5281/zenodo.13776853

#### **MJPPS-172**

## Determination of the structural parameters of Repaglinide in tablet: an antidiabetic drug, using Spectroscopic methods

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Keywords: Repaglinide, FT-IR, NMR-1H, UV

**Abstract:** The spectroscopy area provides molecular-level information about an anti-diabetic drug through qualitative and quantitative analysis, Repaglinide is an antidiabetic medication in the meglitinide class that is used to treat type II diabetes mellitus. The objective of this work was to characterize Repaglinide by using UV spectroscopy (UV), nuclear magnetic resonance (NMR), and infrared spectrometry (FTIR). The UV results showed that the maximum absorption was at 208, 243, and 285 nm. The IR spectra obtained are consistent with those described in the literature. The NMR-1H spectra revealed information about the various hydrogen and carbon atoms in the molecule as well as their chemical surroundings. The provided methods were successfully employed to control a drug with great accuracy and precision.

**Reference:** Haddad et al. (2024) Determination of the structural parameters of Repaglinide in tablet: an antidiabetic drug, using Spectroscopic methods. Mediterr J Pharm Pharm Sci. 4 (2): 75-81. [Article number: 162]. https://doi.org/ 10.5281/zenodo.12601827

#### **MJPPS-173**

## Glycosylated hemoglobin in type 2 diabetic patients as a biomarker for predicting dyslipidemia

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Keywords: Diabetes mellitus, glycemic control, HbA1c, Libya, lipid profile

**Abstract:** Type 2 diabetes mellites (T2DM) is a common complex disease with multiple factors contributing to its development and progression. Dyslipidemia refers to the abnormality of lipid metabolism, characterized by elevated levels of low-density lipoprotein (LDL), total cholesterol (TC), triglycerides (TG), and decreased levels of high-density lipoprotein (HDL). It is a major risk factor for cardiovascular disease in type 2 diabetic patients. This study aimed to evaluate the diagnostic value of glycosylated hemoglobin (HbA1c) and fasting blood glucose (FBG) in predicting the risk of developing diabetic dyslipidemia. 86 clinically diagnosed Libyan patients with type 2 diabetes mellitus (44 males: 42 females), 30 years and 70 years of age were engaged in this study. Levels of HbA1c, blood glucose, TC, TG, LDL, and HDL were performed using a Lntegra Cobas 400+ analyzer. The findings showed that HbA1c exhibits a significant positive correlation with TC and TG with no significant correlation with LDL and HDL levels. Thus, this study suggests that HbA1c can be used as a potential dual marker of glycemic control and dyslipidemia in type 2 diabetes mellitus.

**Reference:** Gamag et al. (2024) Glycosylated hemoglobin in type 2 diabetic patients as a biomarker for predicting dyslipidemia. Mediterr J Pharm Pharm Sci. 4 (4): 1-5. [Article number: 173]. https://doi.org/10.5281/zenodo.13993737

#### **MJPPS-174**

### **Teacher needs manifold skills in the Modern Educational Process**

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Keywords: Changes, facilitator, medical education, teaching skills

**Abstract:** My journey as a teacher started in 1971, keeping the student's interests in mind. The experiences gained through observing some of the best teachers in mind like Dr. Gopalan (Director General of ICMR) Dr. Srikantia (Director, National Institute of Nutrition, Hyderabad), and Dr. Copper (Madras Medical College) I developed an interest in teaching. What I learned was to teach in a simple language that is relevant to the field of education. Being a Rotarian as well as having the opportunity of being a Student Advisory Council chairman, IISc, Banglore, and Ad Hoc President of the Research Scholar's Association, Madras University, I learned the art of speaking and communication. One of the key points of my learning is to learn the ability to develop a rapport with the students whom I teach. The workshops and training imparted by Medical Education Nodal centers, refined and made my teaching relevant to medical students. One of the needs of the students. I developed this skill as I ran one of the ICMR-recognized diagnostic centers. The center gave me the opportunity to gain my practical skills for basic and clinical Biochemistry.

A teacher needs to be well-versed in the subject you teach. When my journey as a teacher started at Al-Arab Medical University, Benghazi, Libya, the then Professor and Head of the Department told me that I needed to remember the basic concepts of all the areas in Biochemistry. One must be ready to teach whenever he or she is asked to teach. During that time, there was paucity in the number of Textbooks to be given to the students. Your teaching became the most important source of information. My Arab students were very eager to learn. I adopted the method of efficiently using the Blackboard as the medium of communication. To make them understand in English, I used to write the essentials in bold letters on the Black Board. Many of them still have those notes even today as a source of motivation. During that time there were no teaching aids except for overhead projection of material to be taught. My teaching is mostly interactive. I did not use any audio-visual aids. I adopted the method of teaching without any notes or any other source like audio visual aids. It proved very effective for me (Teaching from the learner's point of view).

**Reference:** Sheriff DS (2024) Teacher needs manifold skills in the Modern Educational Process. Mediterr J Pharm Pharm Sci. 4 (4): 6-8. [Article number: 174]. https://doi.org/10.5281/zenodo.14041957

#### **MJPPS-175**

### A comparative study of intravenous midazolam marketed in Libya

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Keywords: Assay, benzodiazepine, chromatographic, Infrared, Pharmacopeia

**Abstract:** Midazolam, a benzodiazepine medication, is used for sedation during diagnostic and therapeutic medical procedures. Insufficient doses of sedatives, including midazolam, can result in patient anxiety and awareness during the procedure. Several brands of midazolam are available in the Libyan market. This study aims to identify and estimate the medication content of intravenous midazolam in various marketed products using different analytical methods. Product identity was confirmed using Infrared methods (IR) and retention times of High-Performance Liquid Chromatographic methods (HPLC). Quantification was performed using a rapid reverse-phase HPLC method. Chromatographic analysis was conducted on a C18 column (250 mm×3.3 mm I.D., 5.0  $\mu$ m particle size) with a mobile phase comprising acetonitrile, methanol, and 0.065 M ammonium acetate buffer (50: 20: 30, v/v/v), adjusted to a pH of 5.5±0.02 with orthophosphoric acid, at a flow rate of 1.0 ml/min. Ultraviolet (UV) detection was set at 220 nm. The identification results met British Pharmacopeia (BP) standards. However, the midazolam content in the Tunisian brand was shallow compared to the products from Germany and Switzerland. Thus, post-marketing testing is essential to assess the quality of critical drugs like midazolam, and further investigations, including clinical evaluations and regulatory follow-up, are necessary.

**Reference:** Belaid et al. (2024) A comparative study of intravenous midazolam marketed in Libya. Mediterr J Pharm Pharm Sci. 4 (4): 9-14. [Article number: 175]. https://doi.org/10.5281/zenodo.14042921

#### **MJPPS-176**

# Study of the diastereoisotopic protons effects on the stability of dorzolamide stereochemical by spectroscopic methods

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Keywords: Diastereoisotopic, FTIR, NMR, spectroscopy, UV-visible

**Abstract:** In scientific and analytical research, Ultraviolet-visible spectroscopy, Fourier Transform Infrared spectroscopy, and Nuclear Magnetic Resonance spectroscopy have widely been used to analyze and characterize various substances. Ultraviolet, infrared, and Nuclear Magnetic Resonance spectroscopy were studied for diastereoisotopic protons of dorzolamide, which is used to treat glaucoma and ocular hypertension. Methanol was used as a solvent in Ultraviolet and we obtained three wavelengths: 203 nm, 253 nm, and 257 nm, where Ultraviolet spectroscopy was employed for stability testing of pharmaceuticals. By analyzing the Fourier Transform Infrared spectrum, we also can determine the presence or absence of specific functional groups in a compound, helping to identify the compound or confirm its structure in analyzing the Nuclear Magnetic Resonance spectrum. It can determine the types and numbers of hydrogen (proton) and carbon atoms in a molecule and their chemical environment, which helps elucidate the molecular structure.

**Reference:** Oulad Ali et al. (2024) Study of the diastereoisotopic protons effects the stability of dorzolamide stereochemical by spectroscopic methods. Mediterr J Pharm Pharm Sci. 4 (4): 15-21. [Article number: 176]. https://doi.org/ 10.5281/zenodo.14049067

#### **MJPPS-177**

# Effect of lignin-rich *Vitex negundo* leaf extract on antioxidant, thrombolytic, antiproliferative, antidepressant, and cytotoxic activities in mice

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Keywords: Brine shrimp, diazepam, exploratory behaviour, HeLa cell, IC<sub>50</sub>, streptokinase

**Abstract:** In several counties, *Vitex negundo* have been claimed to have anti-inflammatory, analgesic, and antioxidant activities. It's frequently used in folk medicine for the treatment of various pain disorders. The methanol extract of *Vitex negundo* leaves was studied for its biological effects. To investigate different biological exertions of the methanol extract of *Vitex negundo*, the leaf extracts were obtained with pure methanol. *In-vitro* anti-oxidant activity was resolved using a DPPH radical scavenging assay. A clot lysis test was used to assess the thrombolytic activity. Antiproliferative effects of DMSO *Vitex negundo* in cell lines acquired from human cervix adenocarcinoma (HeLa cells). Using the brine shrimp lethality bioassay method, the plant extracts were evaluated for cytotoxic action. LC<sub>50</sub> values were determined through probit analysis of mortality percentages. In hole cross-test and open-field test, neuropharmacological activities of mice were assessed in mice. The findings revealed that *Vitex negundo* leaf extract possessed antioxidant effects, streptokinase exposed significant clot lysis and human cervix adenocarcinoma cells demonstrated mild cervical antiproliferative activity. Significant neuropharmacological action (antidepressant and anxiolytic) and cytotoxic action were shown by the methanol extract of *Vitex negundo* leaves.

**Reference:** Kundu et al. (2024) Effect of lignin-rich *Vitex negundo* leaf extract on antioxidant, thrombolytic, antiproliferative, antidepressant, and cytotoxic activities in mice. Mediterr J Pharm Pharm Sci. 4 (4): 22-32. [Article number: 177]. https://doi.org/10.5281/zenodo.14060734

#### **MJPPS-178**

## Comparative assessment of *Solanum melongena* (Eggplant) against multi-drugresistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*

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Keywords: Minimum inhibitory concentration, multi-drug resistant, vancomycin-ofloxacin resistant

Abstract: Solanum melongena (Eggplant) is a medicinal plant belonging to the family Solanaceae. This study aimed to perform a comparative assessment of the methanol extracts of the fruit and the leaf of Solanum melongena against multi-drug-resistant Staphylococcus aureus and Pseudomonas aeruginosa. The crude extracts were obtained from the leaves and fruits of the plant using methanol. The plant extracts were tested for the presence of various phytochemical constituents qualitatively. The antibacterial assay and minimum inhibitory concentration for the crude extracts were carried out using the agar well diffusion and agar dilution methods, respectively. Phytochemical analysis of methanol extracts of Solanum melongena revealed the presence of various phytoconstituents. Antibacterial assay of methanol extracts of Staphylococcus melongena against multi-drug-resistant Staphylococcus aureus isolates with ciprofloxacin as a reference control revealed inhibition zone diameter ranging from 04.0±0.0 to 11.0±0.0 mm; in contrast that of multi-drug-resistant Pseudomonas aeruginosa isolates revealed inhibition zone diameter, with ciprofloxacin showing no inhibition. The minimum inhibitory concentration of the methanol extracts on Pseudomonas aeruginosa isolates ranges from 25.0 to 50.0 mg/ml and 25.0->50.0 mg/ml, respectively, in comparison, the minimum inhibitory concentration of the methanol extracts on Staphylococcus aureus isolates ranges from 6.25 to 50.0 mg/ml and 6.25->50.0 mg/ml respectively. Thus, the fruit extract had better activity against test multi-drugresistant Pseudomonas aeruginosa and Staphylococcus aureus than the leaf extract of Solanum melongena.

**Reference:** Ebenebe et al. (2024) Comparative assessment of *Solanum melongena* (Eggplant) against multi-drugresistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Mediterr J Pharm Pharm Sci. 4 (4): 33-40. [Article number: 178]. https://doi.org/10.5281/zenodo.14176439

#### **MJPPS-179**

## Post-market *in-vitro* comparative studies of different brands of metformin tablets available in Libya

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Keywords: Disintegration time, pharmaceutically equivalence, physical testing, quality control test

**Abstract:** Metformin hydrochloride is the first-line anti-diabetic drug used to treat type 2 diabetes mellites and helps to control blood sugar levels. Various brands of metformin are available in the Libyan market which makes it challenging to select, an effective and economical one. This study aimed to compare different brands of metformin available in the Misurata and evaluate the quality parameter according to the British Pharmacopoeia. Six brands of metformin tablets (850 mg) were taken from the market and assessed. To achieve this purpose five tests were done on each brand, the uniformity of weight test shows the average weight and 5.0% deviation, the friability test gives how much the tablet can stand attrition, the disintegration time test shows the time taken by the tablet to disintegrate, dissolution test to confirm the rate of drug release, weight variation and friability test of all brands was within the specified limit. Disintegration time for all the brands was within 30 minutes. All six brands of metformin hydrochloride tablets fulfilled the *in-vitro* dissolution rate test specification not less than 80% of the drug is released within 45 minutes. Using Ultraviolet-visible (UV) spectroscopy, UV analysis of different samples shows that the percentage content of active ingredients of five brands of metformin hydrochloride tablets was within the monograph specification (95%-105%) of drug content but one brand failed this test. The study indicated that strict quality control of imported drugs should enforced to ensure effective and safe medicines in the Libyan market.

**Reference:** Daghman et al. (2024) Post-market *in-vitro* comparative studies of different brands of metformin tablets available in Libya. Mediterr J Pharm Pharm Sci. 4 (4): 41-47. [Article number: 179]. https://doi.org/ 10.5281/zenodo. 14214329

#### **MJPPS-180**

## A review on pneumonia in children: Clear insights

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Keywords: Chest infections, diagnosis, etiology, pneumococcal vaccination, pneumovirus, pulmonary

**Abstract:** In developing nations, pneumonia is the leading cause of death for young children; however, mortality can be effectively decreased with early diagnosis and care. The objectives of the review are to evaluate the significance of clinical signs and symptoms in diagnosing pneumonia, and treatment in children under the age of five, as well as to examine the precision of WHO criteria in diagnosing clinical pneumonia in general people. According to the World Health Organization's definition and the Integrated Management of Childhood Illness (IMCI) initiative, pneumonia is clinically characterized by an acute cough, with or without fever, accompanied by dyspnea or tachypnea. Acute infections of the gut and gastroenteritis can be effectively controlled and treated. Acute respiratory infections, particularly pneumonia, are increasingly regarded as the leading infectious cause of mortality among children in developing nations. The diagnosis of pneumonia is primarily clinical and categorized into four domains: clinical assessment, epidemiological factors, radiographic imaging, and standard laboratory results. Pneumonia can be classified into three categories: bacterial, viral, and acute pneumonia. In every instance, a potential diagnosis should be made and the appropriate course of therapy should be administered based on the features of that pneumonia. Preventing and lowering the death and morbidity of this significant disease in children can be greatly aided by physicians having precise and accurate information on how to identify and treat it without incurring additional expenses.

**Reference**: Rafi IK (2024) **A review on pneumonia in children: Clear insights.** Mediterr J Pharm Pharm Sci. 4 (4): 48-57. [Article number: 180]. https://doi.org/10.5281/zenodo.14279043

#### **MJPPS-181**

## Beyond self-assessment: Understanding Libyan pharmacists' confidence and barriers to conducting pharmacy practice research

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Keywords: Competence, confidence, pharmacy practice research

Abstract: Recent studies have shown that pharmacists have an interest in conducting research. However, barriers such as lack of confidence prevent pharmacists from participating in ruling research. This study evaluated pharmacists' self-perceived competence and confidence scores for health-related research. A validated self-designed questionnaire was distributed to randomly recruited Libyan pharmacists in hospitals and community pharmacies. Both descriptive and inferential statistical analyses were applied to the data. The analysis included 191 responses. Most respondents had prior research experience (67.0%). Over two-thirds (72.3%) rated their ability to conduct health-related research as good to excellent. The majority had not published articles in peer-reviewed journals in the past five years (71.2%) and had no abstracts or posters published at local/regional (65.4%) or international conferences (79.1%). Lack of support (55.5%) was the most common barrier to participating in health-related research, followed by lack of funds (42.9%), time (29.3%), and knowledge (26.2%). At least two-thirds of pharmacists felt somewhat competent or confident in conceptualizing research ideas, collecting data, managing and storing data, and preparing presentations. Less than 60% felt competent /confident in outlining statistical plans and using statistical software. Overall, pharmacists displayed moderate competence (median score=38.0/65) and confidence (median score=40/65) in planning and conducting health-related research. Those with prior research experience (median score=42.0 vs. 29.0) and training (median score=41.0 vs. 28.0) had significantly higher scores. Higher scores were also noted among those who had published in peer-reviewed journals (median score=46.0 vs. 37.0) and presented at regional/local conferences (median score=46.5 vs. 34.0). Most pharmacists in Libya were interested in conducting research, and the majority of them had previous research experience and previous research-related training. The pharmacists had moderate competence and confidence to plan and conduct research. Research training was recommended for practicing pharmacists and pharmacy students to improve pharmacists' research involvement and promote the advancement of pharmacy practice in Libya.

**Reference:** Alshami et al. (2024) Beyond self-assessment: Understanding Libyan pharmacists' confidence and barriers to conducting pharmacy practice research. Mediterr J Pharm Pharm Sci. 4 (4): 58-67. [Article number: 181]. https://doi.org/ 10.5281/zenodo.14279010

#### **MJPPS-182**

## Insight into the synthesis of warfarin and its promiscuous derivatives

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Keywords: Amines, catalysts, green synthesis, microwave, on water synthesis

**Abstract:** Warfarin is the most widely used anticoagulant drug which reduces the risk of blood clots forming. This review aims to highlight the significant research on the synthesis of warfarin and its derivatives using numerous methods such as Michael reactions, green enantioselective, one-pot condensation, and catalytic synthesis. The synthesis of warfarin derivatives was discussed since they have proven to have higher biological activity than warfarin itself. Further, this review was carried out to figure out the shortcomings in the synthesis methods and shed light on the contribution of each research on the development and design of stereospecific synthesis of warfarin or its derivatives which were proven to be potent hits with an acceptable cost. Moreover, the contribution of some methods in green chemistry advancement has been investigated.

**Reference:** Ghouizi et al. (2024) Insight into the synthesis of warfarin and its **promiscuous** derivatives. Mediterr J Pharm Pharm Sci. 4 (4): 68-96. [Article number: 182]. https://doi.org/10.5281/zenodo.14293578