Open Access

EURASIAN EXPERIMENT JOURNAL OF PUBLIC HEALTH (EEJPH)

ISSN: 2992-4081

Volume 7 Issue 2 2025

©EEJPH Publications

Page | 75

Nutritional Aspects of Medicinal Plants in Diabetes and Infectious Disease Management

Kagambira Zimbuga M.

Faculty of Medicine Kampala International University Uganda

ABSTRACT

Medicinal plants have been used for millennia as remedies for various health conditions. Beyond their therapeutic benefits, these plants offer nutritional properties that make them invaluable in managing nutrition-related diseases, particularly diabetes and infectious diseases. This review examines the nutritional and bioactive compounds in medicinal plants and their roles in glycemic control, metabolic syndrome management, and immune modulation. We discuss the synergistic effects of bioactive phytochemicals, such as flavonoids and terpenoids, in addressing microbial resistance and chronic inflammatory conditions. Furthermore, dietary strategies integrating medicinal plants into daily consumption for both preventive and therapeutic purposes are proposed. Future research directions include validating ethnobotanical knowledge and integrating phytomedicine into dietary frameworks, paving the way for novel approaches to global healthcare challenges.

Keywords: Medicinal plants, Nutritional aspects, Diabetes management, Infectious diseases, Phytochemicals, Immune modulation.

INTRODUCTION

Plants have been used for healing purposes since ancient times. Nowadays, they belong to the fields of medicine known as phytotherapy or phytopharmacology and are an extremely important issue due to the increasing search for natural drugs as alternatives to synthetic ones. Nonetheless, medicinal plants and herbs do not only play a role in healing treatments but also serve as dietary plants that help prevent nutrition-related diseases; a concept dating from antiquity that respects the union of taste, health, and well-being, and which is modernly rediscovering that food is a prescription. All over the globe, in the most diverse cultures, one can see the recognition of what today is called the possible nutritional potential of these plants in the most ancient food habits [1, 2]. Old wives' tales and traditional uses and knowledge report about medicinal plants and herbs being dedicated to healing because if you stay healthy, you are not obliged to beg for food. This will allow for the selection of plants and flowers based on their organoleptic and nourishing properties, using them as aromatizers and excipients for the preparation of food containing high levels of proteins, fibers, and sugars but low in minerals and vitamins. Plants and their parts used for healing as well as food must fulfill organoleptic, technological, and especially nutritional characteristics. Some medicinal plants and herbs show an interesting nutritional profile that goes beyond the basic ones concerning proteins, lipids, carbohydrates, fibers, and energy, characterized by a rich content of minerals, vitamins, and bioactive minor components [3, 4].

Overview of Medicinal Plants in Traditional Medicine

Overview Medicinal plants have abounded across cultures and ethnic backgrounds since the earliest human settlements, playing a crucial role in the dawn of traditional knowledge. Indigenous people around the world have drawn the benefits of the abundance of local flora to explain health and illness, reinforcing their ritual links with the spiritual life to which they belong. Indeed, traditional knowledge has provided

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Open Access

descriptions of the plants with their protective or healing properties or focused on plants best avoided, which reflect the population's attitudes to remedies that keep them well. Moreover, the usage of these plants in both folk medicine and community health or healing is very often essential for unrecognized ailments, which they also use to treat prevalent conditions. Several reports on the economic and social importance and use of medicinal plants, each referring to specific indigenous populations and/or to unique geographic areas, have been released. This traditional heritage is kept alive through the oral traditions of local peoples. Remarkably, the amalgam of ancient wisdom about medicinal plants and the trend of modern approaches to healthcare have produced, over time, a body of knowledge that is today accessible to everyone. This happens especially when multicultural societies have inherited the practices of many ethnic groups drawing from both therapeutic systems. In the Western world, in recent decades, many of these have been used by botanists, molecular biologists, and pharmacologists who, taking up the ancient challenge of tradition, continue to explore the beneficial qualities of herbs. These research efforts have expanded our understanding of the active principles of phytotherapeutic agents or prepared herbal drugs and have contributed to expanding the list of useful plant species with therapeutic value in various regions of the world. Knowing that much traditional knowledge about plants is not found under today's conditions, a major global need exists to document such practices, even if many of them are doomed to extinction. This need is highest in tropical and subtropical regions, where traditional medicine continues even in modern societies $\lceil 5, 6 \rceil$.

Diabetes Management with Medicinal Plants

Many plant species are reported for their hypoglycemic effects, and some of these plants possess a long history of folk and traditional uses. Considering that diabetes care has its roots in natural remedies, an integrated approach is essential. In this review, important medicinal plants that have a proven record of efficacy in diabetes and its associated comorbidities are discussed. Recognition of the combination therapy consisting of conventional medicinal therapy with dietary and lifestyle management according to the holistic principle was the major goal. Not only is the management of suppuration and putrefaction credited, but overall health via effective glycemic control is also important for improved quality of life. Furthermore, an individual approach should be a selling point, and specific dietary and herbal integrative prescriptions suitable to the genotype, phenotype, and climatic zone need to be suggested to include an efficacious dietary protocol. The neural and gastrointestinal effects of these plants, in addition to their anti-inflammatory, antioxidant, and detoxification properties, and support for degenerated pancreatic beta-cells, might be favorable to exert an anti-hyperglycemic effect. Medicinal plants do not only decrease blood sugar levels; actually, their role in metabolic syndrome and beta-pancreatic cell regeneration through hypoglycemic and beneficial effects are common trends [7, 8].

Role of Diet in Diabetes Management

Over the last few decades, dietary changes have been regarded as fundamental in the management of diabetes, along with lifestyle modifications and drugs. Diet is a basic and pivotal tool, and good nutrition is of paramount importance for controlling blood glucose levels and mitigating the complications of diabetes. It is well known that diabetes shares a direct and indirect association with other noncommunicable diseases such as obesity, cardiovascular diseases, and hypertension. Therefore, the dietary approach to diabetes care should be more comprehensive. Nutrition practice for diabetes should contain the protective capacities of reversing and controlling diabetes, other metabolic syndromes, and their longterm metabolic memory on varied risk profiles of other non-communicable diseases across the lifespan. Several dietary approaches have been unanimously agreed upon for diabetes and prediabetes care. Plantbased foods, particularly those enriched with nutritionally important factors, functional benefits, or bioactive phytochemicals, have been widely used as some of the best choices among diabetes-protective foods. Among them, medicinal plants and herbs fulfill such demand in terms of their multifunctional values and nutritional properties. Thus, the term "nutritional aspect of medicinal plants" ought to be updated to include their functional benefits. Hence, medicinal plants supply nutrition and protein recovery, as well as their functional benefits in diabetes healthcare. The interaction between physiological components of diet and glucose metabolism, oxidative stress, lipid metabolism, inflammation, and endothelial function is well recognized. Among the dietary components, the importance lies in the amount and type of carbohydrates consumed, especially the food source and fiber content, such as cereals, which is greater than the amount of fat and dietary protein. More importance is being given to dietary antioxidants, vitamins, and trace minerals. Since trace minerals have surface regulatory functions in all the organs and are equipped to interfere with pathophysiology under diabetic complications, these dietary

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Open Access

components are needed daily from dietary sources to minimize the risk of both non-communicable diseases and their complications [9, 10].

Given The Multi-Factorial Etiology of Diabetes, Perhaps A Coherent Etiological Approach Is

Needed.

Dietary Guidelines for Diabetes Management

Glycemic control can be managed through drug treatment or by fine-tuning eating habits. A broad array of data shows that healthy food choices can significantly influence blood glucose levels and that people can choose such a diet and maintain it. Full food patterns with lower carbohydrate content, as well as the Mediterranean diet and DASH diet, are protective against type 2 diabetes. Dietary patterns that have been confirmed to be beneficial in controlling hyperglycemia, assuming that the individual has the capacity for multiple food choices based on personal, life, and socio-economic conditions, represent a personal therapeutic approach. The choice of dietary strategy to better manage type 2 diabetes and improve metabolic control is closely linked to the patient's profile and preferences. However, to defeat diabetes and for a holistic approach to health and well-being, in addition to drug treatments, we need to rely on several important internal strategies, including the use of herbs and functional foods, to influence glucose control and metabolism [11, 12]. The present review discusses foods with a performance type that will provide a transfer of internal treatment from diabetes to general wellness. It also provides information on the current recommendations for these dietary habits in subjects with diabetes.

Infectious Disease Management with Medicinal Plants

Infectious diseases that occur naturally or are released into the environment by bioterrorism can have a significant impact on nutritional requirements, along with an increase in nutritional demands from immunity-boosting mechanisms and those raised by low or poor caloric uptake. Infection, as well as the increasing demands for nutrients that normally support physical activities, also shifts the requirements toward higher needs for vitamins and minerals, which can have detrimental effects on immunity. Medicinal plants have long been utilized as disease-treating agents. Recent studies have shown that in many cases, medicinal herbs have scientific evidence of their effectiveness; however, they are being used in combination through their synergistic effects. What characteristic properties of plants make it possible to utilize them as immune-boosting agents? Traditional practices are based on tremendous knowledge accumulated over the years, while modern practices are based on various styles of scientific evidence [13, 14]. Herbs that contain berberine show antibacterial, antiviral, and antifungal actions. Moreover, berberine can halt the growth of parasitic protozoa. However, the actual mechanism of action of berberine is not clear, even though it possesses an inhibitory spectrum against microbial populations. From past to present, several studies have reported the antimicrobial activity of curcumin against a variety of microorganisms. This antimicrobial activity is due to the combination of different fragments such as hydroxide, methyl, and a carbonyl group. This lack of structural specificity leads to its interaction with different macromolecules. Moreover, the general structure of macromolecules in bacteria, viruses, and fungi also significantly contributes to the antimicrobial activity of these macromolecules. Recently, a study was conducted to examine the effects of curcumin on antioxidative responses and viral loading in mice infected with encephalomyocarditis virus. Previous studies on this issue showed that Crocus sativus has been effective against several viruses involved in a variety of diseases. Characteristics of the immune system are affected by nutritional conditions; on the other hand, the amount and function of appropriate nutrition and diet can improve the immune system, and illnesses such as fever can increase the requirements for micronutrients. A pro-inflammatory state can increase the need for macro and micronutrients. It is essential to understand that the amount of micro and macronutrients required to maintain the body's status due to inflammation may differ among individuals. The term nutraceutical has been in use for about 35 years. Nutraceuticals incorporate foods or non-food substances that have general or specific health benefits, such as the prevention and/or treatment of diseases. Thus, a nutraceutical may accomplish the function of strengthening the body's resistance to infectious organisms $\lceil 15, 16 \rceil$.

Immunomodulatory Properties of Medicinal Plants

Plants contain a wealth of phytochemicals that may regulate signaling pathways and elicit biological responses. Therefore, potential bioactives are present in medicinal plants that could enable immune signaling pathway modulation. Deep-rooted knowledge of this area applied to infectious disease management is necessary. The immune system functions to prevent infection and repair and reduce morbidity and mortality resulting from infectious diseases. Diabetes appearing along with obesity and normal aging itself represents a low-grade chronic inflammatory disease, and individuals having diabetes

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

have been categorized as immunosuppressed and immunocompromised versus infectious diseases [17, 18]. The immune system is also responsible for eliminating the pathogens, together with their products and toxins, which are a direct threat to the host. As a consequence, there will be a low level of immune activation in individuals whose dietary intakes of bioactives are not chronically surfeited. Food bioactives abundantly present in diets can serve as low-to-moderate supportive components to the development, maturation, activation, and long-term maintenance of healthy immune systems, including resistance to infectious diseases. Data from scientific research indicate that daily dietary intakes of preparations from some medicinal plants are capable of modifying the complex network of intracellular molecular pathways that interconnect immune cell functioning and the production of chemical mediators responsible for both pro- and anti-inflammatory activities necessary in regulating inflammation-induced tissue damage. However, the broad-scale use of many medicinal plants in dietary support of 'improved immune health' is based on empirical observations, not mechanistic insight obtained from well-controlled studies on humans. The technologies used in the post-genomic era of nutritional immunology are at last advancing, so it will be possible to unravel these mechanisms and effects in future studies [19, 20].

Bioactive Compounds in Medicinal Plants

Bioactive compounds in medicinal plants are characterized as constituents that are responsible for some or many of the restorative properties attributed to the drugs derived from them. The various bioactive constituents found in medicinal plants are typically grouped into different focal classes, for instance, tannins, flavonoids, saponins, alkaloids, terpenoids, and glycosides among others. Flavonoids, alkaloids, and terpenoids have been credited with several possible healthful or prophylactic advantages by studying antidiabetic and antimicrobial effects among others. These promise them as candidates for the development of novel functional food preparations with potential healthcare uses and/or as templates to create semi-synthetic compounds that can serve as the improved basis of innovative pharmaceuticals for the treatment of specific diseases [21, 22]. Medicinal plants have always been used by humans to maintain health, and nourishment, and to prevent various diseases. It is thought that the bioactive phytochemicals or ingredients in medicinal plants are responsible for the beneficial effects on human health and medicine. Additionally, drugs and food supplements constitute an important part of the pharmaceutical and food industries. Diabetic and infectious diseases have persisted for many years, causing serious health deterioration all over the world. Secondary metabolites present in food plants, spices, and medicinal plants have beneficial health-promoting effects compared to their nutritional value. The different bioactives found in medicinal plants have been credited with beneficial health effects, which include antioxidant, anti-inflammatory, and antimicrobial activities. Furthermore, they can act as free radical scavengers aside from protein and enzyme inhibitors. As a result, the impact can moderate the development and prevent the incidence of many diseases. Since they can function as a good source of nutraceuticals and also present pharmacological and medicinal remedies, many industries are also involved in extracting, manufacturing, and marketing herbal medicine and functional foods. However, the herbal and functional food or medicine industry is evidence-based with scientific validation, while traditional uses of herbs play vital roles based on the pharmaceutical preparation process [23, 24].

Phytochemicals and Their Health Benefits

Over the years, diets have been recognized as forward-thinking therapeutic strategies for disease prevention. Today, the major task of taste modification is to provide bioactive phytochemicals in drugs, enterocytes, and cellular targeting sites based on the disease and severity. In scientific philosophy, diets rich in phytochemicals with potential health benefits are preferred and are better than supplements. Clinical and epidemiological studies show that phytochemicals are potential agents against infection, cancer, and chronic disorders with anti-proliferative, anti-inflammatory, narcotic, neuroprotective, antiapoptotic, and estrogenic properties. Plants such as pineapple have been developed as treatments for diabetes in traditional and urban medicine, and their benefits and side effects are evidence-based in different studies [25, 26]. Numerous molecular targets are being identified and used in various cellular signaling pathways, and are often provided for non-disease benefits. It is important to prevent a dosedependent effect to obtain the therapeutic benefits of these chemicals, which must be included in the treatment of various diseases. The use of methyl formyl plastics, carotenoids, and some rare products is beneficial in the treatment of infectious, degenerative, and contagious diseases. The maximum intake of phytochemicals can be referred to for human health benefits. Studies indicate that certain compounds can be toxic for women before men. Medicinal herbs can provide a beneficial effect when mixed with regular food, which can lead to long-term enjoyment of phytochemicals. Synergism may appear in the mixture,

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

while simultaneously increasing the risk of cancer recurrence and the phenology of two or more members $\lfloor 27, 28 \rfloor$.

Future Perspectives and Research Directions

With the increasing popularity of natural remedies and consumer demand for valid supplements and food for health and well-being, there is growing global interest in the study of medicinal plants to validate traditional use, discover new assets, and understand their mechanism of action. In recent decades, numerous compounds from bioactive plants have been elucidated for their therapeutic roles in the management of diabetes and infectious diseases [30, 31, 32, 33]. For example, there appear to be new roles for oleanolic acid, acetophenone, polyphenols, and flavonoids in inhibiting enzymes and pathogen virulence, signaling mechanisms, and biofilm in many multidrug-resistant pathogens. In the management of diabetes, particularly type 2 diabetes, established drugs are experiencing neuropathy, nephropathy, hepatotoxicity, and other side effects, in addition to bacterial resistance or fungal infections. Several plants, including Mangifera indica, Gongronema latifolium, Saba comorensis, and Tamarindus indica, exhibit properties that can manage or eradicate multidrug-resistant pathogens as well as prevent the incidences of diabetes in the future [34, 35, 36, 37]. Consultation studies are needed to scientifically investigate the potential or folkloric knowledge of the indigenous people of a particular region on the plants that manage infectious diseases and diabetes through a dietary and therapeutic regimen and develop into alternative plant-based management. It is very easy to utilize food items that are part of the daily routine of an individual in society. This could potentially grow as a new phytomedicine or novel formulation in Eastern and Western regions of the world [38, 39]. Still, a few areas of study need further emphasis, one of which is the study of the same plant in various countries and their documented individual phytochemistry along with their possible synergistic management of diseases in a polypharmacy regime. It becomes the mandate of scientists, dieticians, and nutritionists to develop a consensus on achieving optimal health with the simultaneous consumption of medicinal phytochemicals and food. Another need is the ethnobotanical, in vitro, and in vivo validation of the prospects of dietary medicinal plants acting as nutraceuticals, food, or medicines for treating diabetes and infectious diseases. This could pave the way for a new global dietary guideline. The management of diabetes through novel food has not previously been documented and could offer a novel solution. Overall, incorporating the collective knowledge from ethnomedicine, pharmacological, and nutritional aspects opens a new era to create a holistic and scientific approach to medicine. Fundamental and translational studies developed in ethnopharmacology and nutritional research procedures provide data as a multimodal molecule to combat multidrug pathogens. From our perspective, there was a need to better understand these molecular interactions, beyond the conventional wisdom of treating traditional ethnomedical applications [29, 30].

CONCLUSION

Medicinal plants hold significant promise for addressing diabetes and infectious diseases through their dual roles as therapeutic agents and nutritional supplements. The bioactive compounds present in these plants provide anti-inflammatory, antioxidant, antimicrobial, and immune-boosting benefits, offering a sustainable approach to managing chronic and infectious diseases. Dietary inclusion of these plants as functional foods or nutraceuticals could enhance health outcomes while mitigating reliance on synthetic drugs. To maximize their potential, interdisciplinary collaboration among scientists, nutritionists, and ethnobotanists is essential for validating traditional uses, understanding mechanisms of action, and standardizing applications. Future research should focus on synergistic therapies, ethnobotanical validations, and the development of global dietary guidelines integrating medicinal plants into healthcare practices. This holistic approach can contribute to improved global health outcomes while respecting the rich cultural heritage of traditional medicine.

REFERENCES

- 1. Knez M, Ranić M, Gurinović M. Underutilized plants increase biodiversity, improve food and nutrition security, reduce malnutrition, and enhance human health and well-being. Let's put them back on the plate!. Nutrition Reviews. 2024 Aug;82(8):1111-24.
- 2. Awuchi CG, Igwe VS, Amagwula IO. Nutritional diseases and nutrient toxicities: A systematic review of the diets and nutrition for prevention and treatment. International Journal of Advanced Academic Research. 2020 Jan;6(1):1-46. researchgate.net
- 3. Nwosu OK, Ubaoji KI. Nutraceuticals: history, classification and market demand. Functional Foods and Nutraceuticals: Bioactive Components, Formulations and Innovations. 2020:13-22. researchgate.net

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

- Scherrer MM, Zerbe S, Petelka J, Säumel I. Understanding old herbal secrets: The renaissance of traditional medicinal plants beyond the twenty classic species?. Frontiers in Pharmacology. 2023 Mar 24;14:1141044. <u>frontiersin.org</u>
- 5. van Wyk AS, Prinsloo G. Health, safety and quality concerns of plant-based traditional medicines and herbal remedies. South African Journal of Botany. 2020 Sep 1;133:54-62.
- Afzal S, Ahmad HI, Jabbar A, Tolba MM, AbouZid S, Irm N, Zulfiqar F, Iqbal MZ, Ahmad S, Aslam Z. Use of medicinal plants for respiratory diseases in Bahawalpur, Pakistan. BioMed Research International. 2021 Apr 4;2021:5578914. <u>nih.gov</u>
- Gong X, Ji M, Xu J, Zhang C, Li M. Hypoglycemic effects of bioactive ingredients from medicine food homology and medicinal health food species used in China. Critical reviews in food science and nutrition. 2020 Aug 5;60(14):2303-26. <u>[HTML]</u>
- 8. Przeor M. Some common medicinal plants with antidiabetic activity, known and available in Europe (A Mini-Review). Pharmaceuticals. 2022 Jan 4;15(1):65.
- 9. Ansari P, Khan JT, Chowdhury S, Reberio AD, Kumar S, Seidel V, Abdel-Wahab YH, Flatt PR. Plant-based diets and phytochemicals in the management of diabetes mellitus and prevention of its complications: a review. Nutrients. 2024 Oct 30;16(21):3709. <u>mdpi.com</u>
- Ansari P, Samia JF, Khan JT, Rafi MR, Rahman MS, Rahman AB, Abdel-Wahab YH, Seidel V. Protective effects of medicinal plant-based foods against diabetes: a review on pharmacology, phytochemistry, and molecular mechanisms. Nutrients. 2023 Jul 24;15(14):3266. <u>mdpi.com</u>
- 11. Sneha S, Thalla S, Rischie I, Shahriar H. Health internet technology for chronic conditions: review of diabetes management apps. JMIR diabetes. 2021 Aug 31;6(3):e17431.
- Balwan WK, Kour S. Lifestyle Diseases: The Link between Modern Lifestyle and threat to public health. Saudi J Med Pharm Sci. 2021;7(4):179-84.
- Dang DX, Li D, Xu SQ, He F, Xia X, Xu S. Pharmacological properties of Humulus scandens: insights from the TCMSP database and existing understanding. Pharmacological Research-Modern Chinese Medicine. 2024 Sep 25:100518. <u>sciencedirect.com</u>
- Bhuda M, Khazamula E. Towards finding a cure for COVID-19: the role of African Traditional Medicine as an indicator of development. African Journal of Development Studies. 2022;2022(si1):137.
- 15. Kosalec I, Jembrek MJ, Vlainić J. The spectrum of berberine antibacterial and antifungal activities. InPromising Antimicrobials from Natural Products 2022 Feb 3 (pp. 119-132). Cham: Springer International Publishing. <u>researchgate.net</u>
- Zhang CW, Huang DY, Rajoka MS, Wu Y, He ZD, Ye L, Wang Y, Song X. The Antifungal Effects of Berberine and Its Proposed Mechanism of Action Through CYP51 Inhibition, as Predicted by Molecular Docking and Binding Analysis. Molecules. 2024 Oct 27;29(21):5079. <u>mdpi.com</u>
- 17. Papp C, Pak K, Erdei T, Juhasz B, Seres I, Szentpeteri A, Kardos L, Szilasi M, Gesztelyi R, Zsuga J. Alteration of the irisin-brain-derived neurotrophic factor axis contributes to disturbance of mood in COPD patients. International Journal of Chronic Obstructive Pulmonary Disease. 2017 Jul 7:2023-33.
- Khan I, Rehman W, Rasheed L, Rahim F, Hussain R, Khan S, Alanazi AS, Hefnawy M, Abdellattif MH. Discovery of Novel and Selective Schiff Base Inhibitors as a Key for Drug Synthesis, Molecular Docking, and Pharmacological Evaluation. ACS omega. 2024 Jul 3;9(28):31148-58.
- 19. Shahbazi R, Sharifzad F, Bagheri R, Alsadi N, Yasavoli-Sharahi H, Matar C. Anti-inflammatory and immunomodulatory properties of fermented plant foods. Nutrients. 2021 Apr 30;13(5):1516. <u>mdpi.com</u>
- 20. Wan X, Yin Y, Zhou C, Hou L, Cui Q, Zhang X, Cai X, Wang Y, Wang L, Tian J. Polysaccharides derived from Chinese medicinal herbs: A promising choice of vaccine adjuvants. Carbohydrate Polymers. 2022 Jan 15;276:118739. [HTML]
- Li X, Geng-Ji JJ, Quan YY, Qi LM, Sun Q, Huang Q, Jiang HM, Sun ZJ, Liu HM, Xie X. Role of potential bioactive metabolites from traditional Chinese medicine for type 2 diabetes mellitus: An overview. Frontiers in Pharmacology. 2022 Nov 21;13:1023713. <u>frontiersin.org</u>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

- Martirosyan D, Christopher S. The benefits of terpenoids as functional foods for the managementof type 2 diabetes mellitus. Bioactive Compounds in Health and Disease-Online ISSN: 2574-0334; Print ISSN: 2769-2426. 2024 Aug 1;7(7):345-7. <u>ffhdj.com</u>
- El-Ramady H, Hajdú P, Törős G, Badgar K, Llanaj X, Kiss A, Abdalla N, Omara AE, Elsakhawy T, Elbasiouny H, Elbehiry F. Plant nutrition for human health: a pictorial review on plant bioactive compounds for sustainable agriculture. Sustainability. 2022 Jul 7;14(14):8329. <u>mdpi.com</u>

24. Sha SP, Modak D, Sarkar S, Roy SK, Sah SP, Ghatani K, Bhattacharjee S. Fruit waste: A current perspective for the sustainable production of pharmacological, nutraceutical, and bioactive resources. Frontiers in Microbiology. 2023 Oct 24;14:1260071.

- 25. Stephen J, Manoharan D, Radhakrishnan M. Immune boosting functional components of natural foods and its health benefits. Food production, processing and nutrition. 2023 Sep 6;5(1):61. <u>springer.com</u>
- 26. Manzoor A, Pandey VK, Dar AH, Fayaz U, Dash KK, Shams R, Ahmad S, Bashir I, Fayaz J, Singh P, Khan SA. Rice bran: Nutritional, phytochemical, and pharmacological profile and its contribution to human health promotion. Food chemistry advances. 2023 Oct 1;2:100296. <u>sciencedirect.com</u>
- 27. Meireles D, Gomes J, Lopes L, Hinzmann M, Machado J. A review of properties, nutritional and pharmaceutical applications of Moringa oleifera: integrative approach on conventional and traditional Asian medicine. Advances in Traditional Medicine. 2020 Dec;20(4):495-515. <u>springer.com</u>
- Zheplinska M, Mushtruk M, Vasyliv V, Kuts A, Slobodyanyuk N, Bal-Prylypko L, Nikolaenko M, Kokhan O, Reznichenko Y, Salavor O. The micronutrient profile of medicinal plant extracts. Slovak Journal of Food Sciences/Potravinarstvo. 2021 Jan 1;15(1). <u>[HTML]</u>
- 29. Shrinet K, Singh RK, Chaurasia AK, Tripathi A, Kumar A. Bioactive compounds and their future therapeutic applications. InNatural bioactive compounds 2021 Jan 1 (pp. 337-362). Academic Press. <u>researchgate.net</u>
- 30. Yang SC, Hsu CY, Chou WL, Fang JY, Chuang SY. Bioactive agent discovery from the natural compounds for the treatment of type 2 diabetes rat model. Molecules. 2020 Dec 3;25(23):5713.
- 31. Aja PM, Igwenyi IO, Okechukwu PU, Orji OU, Alum EU. Evaluation of anti-diabetic effect and liver function indices of ethanol extracts of *Moringa oleifera* and *Cajanus cajan* leaves in alloxan induced diabetic albino rats. Global Veterinaria. 2015;14(3):439-447.
- 32. Offor CE, Ugwu OPC, Alum EU. The anti-diabetic effect of ethanol leaf-extract of *Allium sativum* on Albino rats. Int J Pharm Med Sci. 2014;4(1):1-3.
- Enechi OC, Oluka HI, Ugwu PC. Acute toxicity, lipid peroxidation, and ameliorative properties of *Alstonia boonei* ethanol leaf extract on the kidney markers of alloxan induced diabetic rats. Afr J Biotechnol. 2014;13(5)
- Adonu CC, Ugwu OP, Bawa A, Ossai EC, Nwaka AC. Intrinsic blood coagulation studies in patients suffering from both diabetes and hypertension. Int J Pharm Med Bio Sci. 2013;2(2):36-45.
- 35. Ugwu O-PC, Alum EU, Okon MB, Aja PM, Obeagu EI, Onyeneke EC. Ethanol root extract and fractions of *Sphenocentrum jollyanum* abrogate hyperglycaemia and low body weight in streptozotocin-induced diabetic Wistar albino rats. Oxford University Press. 2023;2(2):10.
- 36. Amusa MO, Adepoju AO, Ugwu O-PC, Alum EU, Obeagu EI, Okon MB, Aja PM, Samson AO. Effect of ethanol leaf extract of *Chromolaena odorata* on lipid profile of streptozotocin-induced diabetic Wistar albino rats. IAA J Biol Sci. 2023;10(1):109-117.
- Alum EU, Umoru GU, Uti DE, Aja PM, Ugwu OP, Orji OU, Nwali BU, Ezeani NN, Edwin N, Orinya FO. Hepato-protective effect of ethanol leaf extract of *Datura stramonium* in alloxaninduced diabetic albino rats. J Chem Soc Nigeria. 2022;47(5).
- Ugwu O-PC, Amasiorah VI. The effects of the crude ethanol root extract and fractions of Sphenocentrum jollyanum on hematological indices and glycosylated hemoglobin of streptozotocin-induced diabetic rats. INOSR Sci Res. 2020;6(1):61-74.
- 39. Enechi OC, Oluka IH, Ugwu OPC, Omeh YS. Effect of ethanol leaf extract of *Alstonia boonei* on the lipid profile of alloxan-induced diabetic rats. World J Pharm Pharm Sci. 2013;2(3):782-795.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

CITE AS: Kagambira Zimbuga M. (2024). Nutritional Aspects of Medicinal Plants in Diabetes and Infectious Disease Management. EURASIAN EXPERIMENT JOURNAL OF PUBLIC HEALTH, 7(2):75-82.

Page | 82

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited