Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

Phytochemical Analysis of Plum Fruit

Haji Khabar Khan Khoso
Institute Of Chemistry Shah Abdul Latif University Khairpur Mir's
Email: khabarkhanhaji@gmail.com
Tajnees Pirzado
Institute Of Chemistry Shah Abdul Latif University Khairpur Mir's
Shehbina Kausar
Jinnah University for Women Karachi Email: shehbinakausar@gmail.com
Farzana Mangrio
Institute of Chemistry Shah Abdul LatUif niversity Khairpur Mir's
Email: farzana.mangrio@salu.edu.pk
Hafiza Samavia Nasir (Corresponding Author)
Institute of Chemistry Shah Abdul Latif University Khairpur Mir's
Email: Samavia.nasir@salu.edu.pk
Abdul Aziz Bakhrani
Institute of Chemistry Shah Abdul Latif University Khairpur Mir's
Email: aziz.bakhrani@salu.edu.pk
Ahmed Yar Khoso
University of Karachi Email: ahmedyar7@gmail.com

ABSTRACT

Plum (*Prunus domestica*) is a nutritionally important fruit widely consumed worldwide and valued for its rich content of bioactive compounds with potential health-promoting properties. The presence of phytochemicals such as flavonoids, alkaloids, saponins, terpenoids, tannins, and glycosides contributes to its antioxidant, antimicrobial, anti-inflammatory, and cardioprotective activities. Due to the growing interest in functional foods and natural health products, the phytochemical evaluation of plum fruits is essential to determine their nutritional and medicinal significance. The present study was conducted to qualitatively screen the phytochemical constituents present in plum fruits obtained from the Sukkur fruit market, Sindh, Pakistan. Fresh plums were collected, dried, and processed to prepare aqueous extracts. Standard qualitative phytochemical screening methods were employed to identify the presence or absence of major bioactive compounds, including alkaloids, flavonoids, saponins, terpenoids, carbohydrates, tannins, glycosides, proteins, and amino acids. The results revealed the presence of several important phytochemicals, indicating that plum fruit is a rich source of biologically active constituents. These compounds are known to possess various therapeutic properties and may help prevent oxidative stress-related disorders and other chronic diseases. The findings suggest that plum fruit has considerable potential as a functional food and a natural source of health-promoting compounds. Furthermore, its phytochemical richness supports its utilization in the development of value-added food products, nutraceutical formulations, and dietary supplements. Future studies involving quantitative analysis

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

and biological activity evaluation are recommended to further explore the medicinal and nutritional potential of plum fruit.

Keywords: Plum Fruit, Phytochemical Screening, Bioactive Compounds, Flavonoids, Alkaloids, Terpenoids, Saponins, Functional Food, Antioxidant Activity, Medicinal Properties

Introduction

Fruits and vegetables, whether consumed raw or processed, are known to be important sources of phytochemicals in the human diet. There are currently about 200,000 phytochemicals known to exist, of which about 20,000 are precisely identified as coming from fruits, vegetables, and grains (Sakhale et al., 2023). In addition to having antibacterial, anti-inflammatory, antithrombotic, cholesterol-lowering, antiviral, and antifungal qualities, phytochemicals also work as antioxidants to fight disease. Pharmaceuticals, agrochemicals, flavors, fragrances, coloring agents, food additives, and biopesticides are just a few of the sectors that use phytochemicals. Alkaloids, phenolics, terpenoids, and saponins are among the phytochemicals that make up their chemical structures. These compounds, which have a variety of identifiable structures, are known as secondary metabolites (Dwivedi et al., 2020). The inclusion of a benzene ring with one or more OH-groups, however, is a typical feature. These substances are generally divided into two groups: non-flavonoids, which include hydroxycinnamic acids, hydrolyzable tannins, hydroxybenzoic acids, stilbenes, and benzoic acids, and flavonoids, which include flavones or proanthocyanidins, flavan-3-ols, flavonols, anthocyanins, non-hydrolyzable tannins, isoflavones, and flavanones (Oluwole et al., 2022). Acids, sugars, and polysaccharides are important sources of phytochemicals, which are plant secondary metabolites known for their antioxidant properties and other unique qualities. Research on the antimicrobial, antiviral, and antibacterial qualities of plants is currently booming. Additionally, by successfully reducing and preventing the growth of dangerous microbes, phytochemicals play a critical function as natural preservatives, preserving the general quality of food products (Kováč et al., 2022). Food goods can be protected by these antimicrobials, which naturally extends their shelf life. Food protection technology has made use of food preservation methods include chilling, nutrient restriction, fermentation, freezing, water activity reduction, acidification, pasteurization, and synthetic antimicrobials. Furthermore, phytochemicals like polyphenols, flavonoids, carotenoids, and anthocyanins have long been utilized to prevent and regulate microbial deterioration in food. Depending on where they come from, food antimicrobials can be classified as either synthetic or natural. Through metabolic attacks carried out by plants against their pathogens, secondary metabolites participate in complex communication (Batiha et al., 2021). Phenolics are bioactive compounds found in fruits and vegetables. A distinct group of phytochemicals found in fruits and vegetables aid in the defense of plants against abiotic stresses, pollution, and diseases. Secondary metabolites can behave in the same ways despite differences in their chemical structures. Both biotic and abiotic stresses cause plants to develop defense metabolites such phytoalexins (Skinnider et al., 2020)..

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

MATERIAL AND METHODS

Sampling

In order to investigate phytochemicals, a random sample of plums will be bought from the Sukkur, Pakistan, local market in 2023. After being put in a sterile plastic bag, the fruit sample was tightly sealed. Write the type of sample, its origin, and the date of collection on the bag using a marking pen (Njiandoh et al., 2020). To avoid any possible deterioration that may have happened during storage, store the bagged samples in a refrigerated container before sending them to the lab for additional analysis. To stop any deterioration, freeze or desiccate the samples right away in a well-ventilated space with regulated humidity and temperature. The fruitarians' phytochemicals can be effectively preserved by cryopreservation or desiccation. Samples must be properly prepared and collected in order to accurately detect the phytochemicals found in plum fruits (Amir et al., 2022).

Preparation of Samples

First, wash the plums and remove any unwanted pieces, such as the skin, seeds, and stem. After weighing the appropriate quantity of sample (about 10–20g), chop the plum fruit sample into tiny pieces. The fruit samples should be ground into a fine powder using a blender or a mortar and pestle.Keep the fine powdered sample dry, cool, and dark to prevent spoiling (Imoisi et al., 2021).

Extraction of Phytochemicals:

Select a suitable solvent for the extraction of phytochemicals, such as ethanol, methanol, or acetone. After adding the powdered sample to the liquid, it was left for a few hours. To obtain a clear extract, run the mixture through a piece of filter paper. Repeat the procedure multiple times to maximize its benefits (Garba et al., 2022).

Qualitative Screening of Phytochemicals

Common analytical techniques can be applied to a variety of qualitative phytochemical research. the identification of chemical substances or groups found in aqueous extracts made from different plants. These qualitative tests use color or precipitation techniques to detect the presence of particular chemicals. Instead of measuring the quantities of distinct chemical groups in different aqueous extracts, the color responses alone allow for the identification of these groups. The aqueous extract from plum fruit is analyzed using traditional qualitative methods (Kishan et al., 2022).

Screening of Protein & Amino Acid

All biological processes taking place in living cells depend heavily on proteins. Proteins exist as a suspension of particles in a medium because they are colloidal in nature. They are unable to cross the plasma membrane. Heat causes proteins to undergo irreversible coagulation, which solidifies them. Furthermore, neutral salts do not dissolve proteins. Amino acids are amphoteric phytocompounds that have the ability to function as both bases and acids. They are highly reactive and mostly soluble in water due to the presence of both an amino group and a carboxylic acid group (Sharma et al., 2022b).

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

Detection of amino acids

The Ninhydrin test involves heating a mixture of three milliliters of an aqueous extract and three drops of a 5% lead acetate solution. A purple or blue coloring indicates a successful response (Lenchyk et al., 2020).

Protein detection

In the Xanthoproteic test, a 3 ml aqueous extract is mixed with 1 ml of concentrated H2SO4 drop by drop. When boiling, the white precipitate turns yellow, and when one milliliter of NH4OH solution is added, it turns orange (Zhang et al., 2022).

Alkaloid screening

Alkaloids are a family of bioactive substances generated from plants that have a nitrogen heterocycle. They can dissolve in some organic solvents but are usually colorless, crystalline, and insoluble in water. To determine whether alkaloids are present, three different conventional phytochemical methods are used (Jacob et al., 2021).

The Wagner test

One milliliter of an aqueous extract and one milliliter of Wagner's reagent—an iodine solution in potassium iodide—are combined. A good reaction is indicated if a reddish-brown precipitate appears.

Mayer test

In the Mayer test, two milliliters of concentrated HCl are added to two milliliters of aqueous extract. Next, a few drops of Mayer's reagent—a mercuric chloride and potassium iodide solution in water—are added. After that, the mixture is vigorously mixed. The development of a green or white precipitate indicates the presence of alkaloids.

The Hager test

In the Hager test, two milliliters of an aqueous extract and two milliliters of Hager's reagent—a saturated picric acid solution—are combined. When a yellow precipitate forms, the test is considered successful.

Screening of Flavonoids

In plants, flavonoids are essential for attracting pollinating insects, preventing microbial infections, and controlling cell growth. The following approach is used to test flavonoids: One milliliter of a 2N sodium hydroxide solution is mixed with two milliliters of an aqueous extract solution. A golden hue indicates the presence of flavonoids (Zezulová et al., 2022).

Tannin Analysis

Most tannins, a kind of phenolic compounds that are frequently found in plants, are soluble in water. One distinct class of condensed tannins that go through ring-isomerization is called phlobatannins. Tannin testing usually entails mixing one milliliter of an aqueous extract with two milliliters of a 5% ferric chloride solution. As a result, a dark blue or greenish-black color appears. A standardized method is used to

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

measure phlobatannins: one milliliter of a plum aqueous extract is mixed with a few drops of diluted hydrochloric acid (1%), which causes a crimson precipitate to develop. Tannins are present in plum aqueous extracts, however phlobatannins are present in trace amounts (Zhang et al., 2022).

Saponin screening

Two milliliters of an aqueous extract and two milliliters of distilled water are combined in a graduated cylinder as part of the standard method for qualitatively analyzing saponins. After that, the mixture is vigorously stirred for fifteen minutes. A favorable response to the presence of saponins is indicated by a 1 cm foam layer. Only the second extract has saponins, according to a qualitative screening analysis of plum aqueous extracts (Hassan et al., 2023).

Carbohydrate screening

A 2 ml aqueous extract is mixed with 1 ml of Molisch reagent (a solution of α-naphthol in ethanol), and then a few drops of strong sulfuric acid are slowly added. After then, the mixture is gently shaken. The appearance of a violet ring at the interface between the two liquids indicates the presence of carbohydrates in the aqueous extracts. Gooseberry aqueous extract produces a brown precipitate, but sea buckthorn aqueous extract produces a purple-red solution (Nowicka et al., 2023).

Steroids and terpenoids screening

A 1 ml aqueous extract is mixed with 10 ml of chloroform, and then 10 ml of sulfuric acid is gradually added as part of the usual procedure for identifying the presence of steroids. The sulfuric acid layer turns yellow-green, while the upper layer turns red. One milliliter of an aqueous extract and two milliliters of chloroform are combined, and then a small amount of powerful sulfuric acid is gradually added to evaluate terpenoids. It is clear that the user interface has a reddish-brown color scheme. It was found through qualitative screening that none of the extracts contained steroids. Nonetheless, the Plum aqueous extract showed trace quantities of terpenoids (Abagale and Iddrisu, 2024).

Glycoside and cardiac glycoside screening

There exist three distinct mainstream phytochemical methodologies:

First, cardiac glycosides are detected using the FeCl3 reagent. A greenish-blue color gradually forms when 1 ml of an aqueous extract, 1 ml of FeCl3 reagent (a combination of 1 ml of a 5% FeCl3 solution with 99 ml of glacial acetic acid), and a little amount of concentrated H2SO4 are added (Mehmood et al., 2021).

Second, cardiac glycosides can be found using the Keller-Killiani test. A brown ring is produced by combining five milliliters of aqueous extract, two milliliters of glacial acetic acid, a tiny quantity of FeCl3 solution, and one milliliter of concentrated H2SO4. It also often causes a purple ring to grow beneath the brown ring.

The Borntrager test is a third kind of test used to find anthraquinonic glycosides. A reaction takes place when two milliliters of an aqueous extract and two milliliters of H2SO4 are heated together. Equal amounts of chloroform are added after

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

the solution has been filtered. After that, the mixture is agitated vigorously, creating two easily distinguishable layers. After isolating the organic layer, ammonia is added to create a pinkish-red color that indicates a favorable reaction.

Result and discussion.

The qualitative phytochemical screening of the aqueous extract of plum (*Prunus domestica*) fruit revealed the presence of a diverse range of biologically active compounds. Phytochemicals are naturally occurring secondary metabolites that play a crucial role in the therapeutic and nutritional properties of plant-derived foods. The detection of these compounds in plum fruit highlights its potential as a valuable source of natural antioxidants and health-promoting substances. The results of the preliminary phytochemical analysis showed that the fruit contains several important classes of bioactive compounds, including tannins, phlobatannins, flavonoids, alkaloids, terpenoids, steroids, glycosides, proteins, amino acids, saponins, and carbohydrates.

The presence of phlobatannins was confirmed through the hydrochloric acid test, which produced a pale pink coloration. Phlobatannins are condensed tannins known for their antioxidant and antimicrobial properties. These compounds contribute to the protective effects of plant materials against oxidative stress and microbial infections. Similarly, tannins were identified by the ferric chloride test, which produced a characteristic green-black color. Tannins are polyphenolic compounds recognized for their astringent properties and their ability to scavenge free radicals. They have been reported to possess antimicrobial, anti-inflammatory, and anticancer activities, making them valuable constituents in medicinal and functional foods.

Steroids and terpenoids were also detected in the aqueous extract. The presence of steroids was indicated by the formation of a brown ring following treatment with chloroform and concentrated sulfuric acid, while terpenoids were confirmed by the appearance of a brown interface. Steroids are important bioactive compounds that exhibit anti-inflammatory and hormone-regulating activities. Terpenoids are among the largest groups of natural products and are known for their antioxidant, antimicrobial, antiviral, and anticancer properties. The presence of these compounds suggests that plum fruit may possess significant pharmacological potential.

Flavonoids were identified using the sodium hydroxide test, which produced a pale brownish-yellow color. Flavonoids are significant for their powerful antioxidant activity, which helps shield cells from oxidative damage and may lower the risk of cardiovascular disease, diabetes, neurodegeneration, and cancer. This underscores why their detection in plum fruit positions it as a functional food with important health-promoting attributes.

Alkaloids were confirmed through the formation of a green or white precipitate with Mayer's reagent. These nitrogen-containing compounds are valued for diverse biological activities—analgesic, antimicrobial, anti-inflammatory, and antihypertensive effects—that contribute to the medicinal profile of plum fruit and highlight its potential use in natural therapeutics.

The analysis also revealed the presence of glycosides, as indicated by the development of a reddish-brown color upon addition of sulfuric acid and ferric chloride reagent. Glycosides are biologically active compounds that are widely

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

recognized for their cardioprotective, antioxidant, and therapeutic properties. Their presence in plum fruit enhances its nutritional and medicinal value and supports its use in health-related applications.

Proteins and amino acids were detected by forming red-brown and gray precipitates, respectively. Proteins are essential macromolecules required for growth, repair, and maintenance of body tissues, while amino acids serve as the fundamental building blocks of proteins. Their presence indicates that plum fruit not only provides beneficial phytochemicals but also contributes to the body's nutritional requirements.

Saponins were identified by the foam test, which produced a stable foam layer approximately 1 cm thick. Given their surface-active properties, saponins have been reported to exhibit antimicrobial, anti-inflammatory, cholesterol-lowering, and immune-enhancing effects. Thus, the presence of saponins in plum fruit further supports its potential role in promoting health and preventing disease.

Carbohydrates were confirmed by Molisch's test, indicated by a purple-red coloration, highlighting plum fruit's role as a natural energy source. Qualitative phytochemical screening showed that the plum fruit aqueous extract possesses a diverse phytochemical profile. The presence of multiple classes of bioactive compounds suggests that plum fruit may exhibit a range of biological and pharmacological activities, including antioxidant, antimicrobial, anti-inflammatory, cardioprotective, and other health-promoting effects. These findings highlight the potential of plum fruit as a functional food and valuable source of natural bioactive compounds for the food, nutraceutical, and pharmaceutical industries. Further quantitative analysis and biological studies are recommended to determine the concentrations of these phytochemicals and to further explore their therapeutic potential.

S.No	Test	Reagent/Method	Positive Observation	Result
1	Tannins	Ferric chloride test	Green-black color	Present
2	Phlobatannins	Dilute HCl test	Pale pink solution	Present
3	Steroids	Chloroform + H_2SO_4	Brown ring formation	Present
4	Terpenoids	Chloroform + conc. H_2SO_4	Brown interface	Present
5	Flavonoids	NaOH test	Light brown-yellow color	Present
6	Alkaloids	Mayer's reagent test	Green color/white ppt	Present
7	Glycosides	$FeCl_3$ + H_2SO_4	Red-brown color	Present
8	Proteins	Conc. H_2SO_4 test	Red-brown precipitate	Present
9	Amino acids	Lead acetate test	Gray precipitate	Present
10	Carbohydrates	Molisch test	Purple-red color	Present
11	Saponins	Foam test	1 cm foam layer	Present

Table 1: Demonstrates that all extracts contained phytochemical components (Alkaloids, Saponins, Tannins, Glycosides, Sterols Tannins, Saponins, andFlavonoids) plum peel, plum and Seed.

Several significant bioactive chemicals were found in the peel, pulp, and seed extracts

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 6 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

during phytochemical screening. All three samples included tannins, suggesting that they may have antioxidant qualities. The peel, pulp, and seed extracts were also discovered to include terpenoids, flavonoids, alkaloids, glycosides, cardiac glycosides, proteins, amino acids, carbohydrates, and saponins. However, none of the samples included steroids. The overall findings show that every component of the sample has a rich phytochemical composition, indicating their potential nutritional and therapeutic value because of the large number of physiologically active components.

Table 1: analysis of phytochemical in plum peel, plum and seed of plum fruit.

Test/Sample	Peel	Pulp	Seed
Tannins	+	+	+
Steroids	-	-	-
Terpenoids	+	+	+
Flavonoids	+	+	+
Alkaloids	+	+	+
Glycoside	+	+	+
Cardiac Glycoside	+	+	+
Protein	+	+	+
Amino Acid	+	+	+
Carbohydrate	+	+	+
Saponins	+	+	+

Conclusion

The current study concluded that the peel, pulp, and seed extracts have a variety of substantial phytochemical ingredients that may greatly enhance their nutritional and therapeutic potential. All studied samples contained tannins, terpenoids, flavonoids, alkaloids, glycosides, cardiac glycosides, proteins, amino acids, carbohydrates, and saponins, according to preliminary phytochemical screening; steroids were not present. The identification of these bioactive substances indicates that the plant materials under study have significant pharmacological potential and could be used as natural sources of medicinal substances.

Tannins and flavonoids suggest potential antioxidant action, which could shield the body from oxidative stress and damage from free radicals. While glycosides and cardiac glycosides may have significant physiological and therapeutic effects, alkaloids and terpenoids are well known for their antibacterial, anti-inflammatory, and medicinal qualities. Similarly, the presence of proteins, amino acids, and carbs emphasizes the samples' nutritional value, whereas saponins are linked to immune-stimulating and antibacterial properties. Together, these substances show the biological significance of the peel, pulp, and seed and encourage their possible use in both conventional medicine and contemporary pharmaceutical applications.

The results also imply that several components of the sample, which are frequently regarded as food or agricultural waste, may really have significant industrial and therapeutic value. Specifically, the peel and seed—which are typically thrown away—showed the presence of nearly all evaluated phytochemicals,

Online ISSN 3007-3197
Print ISSN 3007-3189

suggesting that these by-products could be used to create value-added goods including functional foods, dietary supplements, herbal remedies, and cosmetics. This could help reduce waste and use natural resources sustainably in addition to improving human health.

Additionally, the findings of this study offer scientific backing for the conventional application of plant-based products in the prevention and treatment of a number of illnesses. Numerous biological activities, such as antioxidant, antibacterial, anti-inflammatory, anticancer, antidiabetic, and cardioprotective properties, are known to be exhibited by the phytochemicals found in this study. As a result, the pharmaceutical, nutraceutical, food, and cosmetic industries may find promising uses for the examined samples. Further research is required to ascertain the precise quantity, isolation, characterisation, and biological efficacy of the discovered compounds, as the current work was restricted to qualitative phytochemical screening. To fully investigate their therapeutic potential and safety profiles, advanced analytical methods and both in vitro and in vivo research are advised.

Overall, this study finds that the peel, pulp, and seed have substantial nutritional and therapeutic potential and are rich in beneficial phytochemicals. The study emphasizes the value of natural plant resources as sources of bioactive chemicals and promotes more research in order to create natural medicinal goods and applications that improve health

Acknowledgment
The authors are gratefully acknowledging the support from Institute of Chemistry, Shah Abdul Latif University, Khairpur Mir's, Sindh, Pakistan during the period of sampling and throughout the research activities.

Conflicts
The authors declare no conflict of interest.

References:

SAKHALE, B. K., GIRI, N. A. & BORSE, B. 2023. Role of Phytochemicals in Human Health. *Novel Processing Methods for Plant-Based Health Foods.* Apple Academic Press.

DWIVEDI, A., SINGH, S., KUMAR, S. & MITTAL, P. C. 2020. Organosulfur phytochemicals against metabolic and neurodegenerative diseases: benefits and risks. *Phytochemicals as Lead Compounds for New Drug Discovery.* Elsevier.

OLUWOLE, O., FERNANDO, W. B., LUMANLAN, J., ADEMUYIWA, O. & JAYASENA, V. 2022. Role of phenolic acid, tannins, stilbenes, lignans and flavonoids in human health–a review. *International Journal of Food Science & Technology,* 57**,** 6326-6335.

KOVÁČ, J., SLOBODNÍKOVÁ, L., TRAJČÍKOVÁ, E., RENDEKOVÁ, K., MUČAJI, P., SYCHROVÁ, A. & BITTNER FIALOVÁ, S. 2022. Therapeutic potential of flavonoids and tannins in management of oral infectious diseases—A review. *Molecules,* 28**,** 158.

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

BATIHA, G. E.-S., HUSSEIN, D. E., ALGAMMAL, A. M., GEORGE, T. T., JEANDET, P., AL-SNAFI, A. E., TIWARI, A., PAGNOSSA, J. P., LIMA, C. M. & THORAT, N. D. 2021. Application of natural antimicrobials in food preservation: Recent views. *Food Control,* 126**,** 108066.

SKINNIDER, M., JOHNSTON, C., GUNABALASINGAM, M., MERWIN, N., KIELISZEK, A., MACLELLAN, R., LI, H., RANIERI, M., WEBSTER, A. & CAO, M. 2020. Comprehensive prediction of secondary metabolite structure and biological activity from microbial genome sequences. Nat Commun 11 (1): 6058.

NJIANDOH, M., YOUMBI, E., ARMAND, W., AMBROISE, G., NGWA, A. F., MEDARD, S. & BADJEL, B. 2020. Comparative Evaluation of Six Different Storage Materials for Long-Term Preservation of Huckleberry (Solanum scabrum) Seeds. *International Journal,* 7**,** 30-38.

AMIR, M., ZAFAR, A., AHMAD, R., AHMAD, W., SARAFROZ, M., KHALID, M., GHONEIM, M. M., ALSHEHRI, S., WAHAB, S. & AHMAD, S. 2022. Quality control standardization, contaminant detection and in vitro antioxidant activity of Prunus domestica Linn. Fruit. *Plants,* 11**,** 706.

IMOISI, C., IYASELE, J., IMHONTU, E., ORJI, U. & OKHALE, S. 2021. Phytochemical and antioxidant capability of Vitex doniana (Black Plum) fruit. *Journal of Chemical Society of Nigeria*, 46.

GARBA, J., OBA, A., OFILI, A., JOHN, B., ISAH, H., JOHN, K. V. & MUSA, J. A. 2022. Phytochemical screening, proximate composition and mineral element analysis of Neocarya macrophylla (Gingerbread) plum and its effects on microorganisms. *Journal of Biochemistry, Microbiology and Biotechnology,* 10**,** 76-81.

KISHAN, R., SHUKLA, A. & SINGH, R. 2022. Proximate analysis, phytochemical screening, total phenolic content and in-vitro antioxidant potential of Prunus domestica L.(Seed coat). *Order,* 15**,** 239-250.

LENCHYK, L., UPYR, T., MOHAMMED, S. & KOMISARENKO, M. 2020. Study of amino acid composition of prunus domestica fruits pectin complex. *Int. J. Pharm. Chem,* 6**,** 60.

SHARMA, P., SINGH, N., SINGH, S., KHARE, S. K., NAIN, P. K. S. & NAIN, L. 2022b. Potent γ-amino butyric acid producing psychobiotic Lactococcus lactis LP-68 from non-rhizospheric soil of Syzygium cumini (Black plum). *Archives of Microbiology,* 204**,** 82.

ZHANG, L., ZHANG, H., TANG, L., HU, X. & XU, M. 2022. Isolation, characterization, antioxidant activity, metal-chelating activity, and protein-precipitating capacity of condensed tannins from Plum (Prunus salicina) fruit. *Antioxidants,* 11**,** 714.

JACOB, A., DAUDA, J., IDOWU, O., ADAJI, M., AKEJI, S., EJIM, C. & IDOWU, O. 2021. A comparative assessment of the phytochemical composition of Ximenia caffra (Sour Plum) Leaf. *Arabian Journal of Chemical and Environmental Research,* 8**,** 418-435.

ZEZULOVÁ, E., ONDRÁŠEK, I., KISS, T. & NEČAS, T. 2022. Qualitative and nutritional characteristics of plum cultivars grown on different rootstocks. *Horticulturae,* 8**,** 1123.

Online ISSN 3007-3197
Print ISSN 3007-3189

HASSAN, A., GIRBOBO, B. & UMAR, S. 2023. Fungal load evaluation of the leave and fruit extracts of Vitex Doniana (black plum) using three basic phyto-medicinal preparatory protocols.

NOWICKA, P., WOJDYŁO, A., TKACZ, K. & TURKIEWICZ, I. P. 2023. Quantitative and qualitative determination of carotenoids and polyphenolics compounds in selected cultivars of Prunus persica L. and their ability to in vitro inhibit lipoxygenase, cholinoesterase, α-amylase, α-glucosidase and pancreatic lipase. *Food Chemistry: X,* 17**,** 100619.

ABAGALE, S. A. & IDDRISU, A. 2024. Biochemical Evaluation of Nutrient-Complementary Components of Vitex Doniana (Black Plum) Relating to Health and Food Security. *International Journal of New Chemistry,* 11**,** 311-328.

MEHMOOD, T., TANVEER, A., NADEEM, F., ANWAR, F., SAEED, S. & TABASSAM, Q. 2021. Evaluation of effect of different solvent systems on functional and pharmacological properties of fruits and leaves extracts from natal plum. *Journal of Food Measurement and Characterization,* 15**,** 2667-2678.