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# *Colocasia esculenta* (L.) Schott: A nutraceutical powerhouse with multifaceted health benefits

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**Abstract**

*Colocasia esculenta* (L.) Schott, commonly known as taro, is extensively cultivated in tropical and subtropical regions, including Asia, Africa, the Pacific Islands, and the Americas. This plant holds significant ethnobotanical importance, as evidenced by its widespread use in traditional medicine and its growing recognition in scientific and pharmacological research. Historically, various parts of the *C. esculenta* plant such as the leaves, stems, stolons, and corm, have been utilized by local communities for the treatment of diverse ailments, including diabetes, infections, inflammation, neurodegenerative diseases, and cardiovascular conditions. Despite its long-standing medicinal use, the chemical composition and therapeutic potential of *C. esculenta* remain underexplored, necessitating further research to fully elucidate its pharmacological properties. Phytochemical studies have identified a range of bioactive compounds in *C. esculenta*, including flavonoids, alkaloids, saponins, and phenols, which collectively contribute to its antioxidant, anti-inflammatory, antimicrobial, and anticancer activities. Additionally, the plant's mucilage and polysaccharide content are believed to play a key role in its immunomodulatory and wound-healing properties. These findings highlight the potential of *C. esculenta* as a valuable resource for the development of novel therapeutic agents. This comprehensive review delves into the phytochemical composition and pharmacological significance of *C. esculenta*, to provide a foundation for future drug development and research.

## 1. Introduction

Medicinal plants have long been valued for their ethnomedicinal properties and have played a pivotal role in the biosynthesis of numerous pharmacological agents across diverse populations. Plant-based medicines have gained significant popularity due to their affordability, accessibility, widespread availability, efficacy, and relatively lower toxicity compared to synthetic drugs. The therapeutic benefits of plants stem from their diverse primary and secondary metabolites. Primary metabolites, essential for plant growth and development, are synthesized consistently throughout the plant's life cycle. In contrast, secondary metabolites, which primarily protect plants from biotic and abiotic stresses, often exhibit minimal toxicity toward humans, making them ideal candidates for medicinal applications (Arif *et al.,* 2022; Shruthi *et al.,* 2023). Ethnomedicines derived from medicinal plants are widely regarded as safer alternatives and have demonstrated remarkable efficacy in treating a variety of ailments (Banu *et al.,* 2024). Globally, approximately 80% of the population relies on plant extracts for primary healthcare, with nearly 90% of traditional medicine prescriptions being plant-based. This reliance underscores the importance of exploring and validating the therapeutic potential of medicinal plants, a pursuit that remains both engaging and challenging for ethnobotanists (Banu *et al.,* 2025; Naaz *et al.,* 2024). Among the myriad of medicinal plants, *Colocasia esculenta* (L.) Schott, commonly known as taro, stands out as a nutraceutical powerhouse with multifaceted health benefits. This review focuses on *C. esculenta*, a plant deeply rooted in traditional medicine, and examines its rich phytochemical composition, pharmacological properties, and potential as a source of natural therapeutics for modern healthcare.

*Colocasia esculenta* (L.) Schott (Taro), an ancient and multi-purpose crop, holds a prominent position as a staple food source in tropical and subtropical regions across the globe. As a member of the Araceae family, *C. esculenta* is not only valued for its nutritional content but also for its remarkable nutraceutical properties and diverse phytochemical profile, which contribute to its wide-ranging health benefits. Historically, various cultures have utilized different parts of the plant, including its leaves and tubers, in traditional medicine to treat a spectrum of ailments, ranging from metabolic disorders to infectious diseases. This longstanding ethnomedicinal use has spurred scientific interest in exploring the plant's bioactive constituents and their potential therapeutic applications. Phytochemical investigations of *C. esculenta* have revealed the presence of several biologically active compounds, including saponins, flavonoids, phenolic compounds, and alkaloids. These phytochemicals are responsible for the plant's demonstrated pharmacological properties, such as anti-inflammatory, antioxidant, antidiabetic, and antimicrobial activities (Patel and Singh, 2023; Munanie, 2023; Jain *et al.,* 2023). For instance, flavonoids and phenolic compounds are known to

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scavenge free radicals, thereby reducing oxidative stress and inflammation, while saponins and alkaloids have shown potential in modulating blood sugar levels and inhibiting microbial growth. These findings highlight the plant's multifaceted therapeutic potential and its relevance in addressing both chronic and infectious diseases. Recent research on *C. esculenta* has expanded into four key areas: (1) its potential role in neoplasia (cancer) studies, where its bioactive compounds may inhibit tumor growth or induce apoptosis in cancer cells; (2) its ability to regulate blood sugar levels, making it a promising candidate for diabetes management; (3) its cardiovascular health benefits, including its potential to lower cholesterol and improve heart function; and (4) its neuroprotective properties, which may offer therapeutic avenues for neurodegenerative disorders such as Alzheimer's and Parkinson's diseases (Jain *et al.,* 2023; Shah *et al.,* 2022). These studies underscore the plant's versatility and its potential to contribute to modern medicine. The extensive therapeutic properties of *C. esculenta* position it as a valuable resource for the development of natural remedies and pharmaceutical formulations. Its rich phytochemical composition, combined with its demonstrated health benefits, makes it a promising candidate for further research and innovation in drug discovery. A comprehensive understanding of its bioactive compounds, mechanisms of action, and therapeutic applications is essential to fully harness its potential. By integrating existing knowledge and addressing research gaps, this review aims to provide a foundation for future studies, paving the way for the development of novel, plant-based therapeutic solutions.

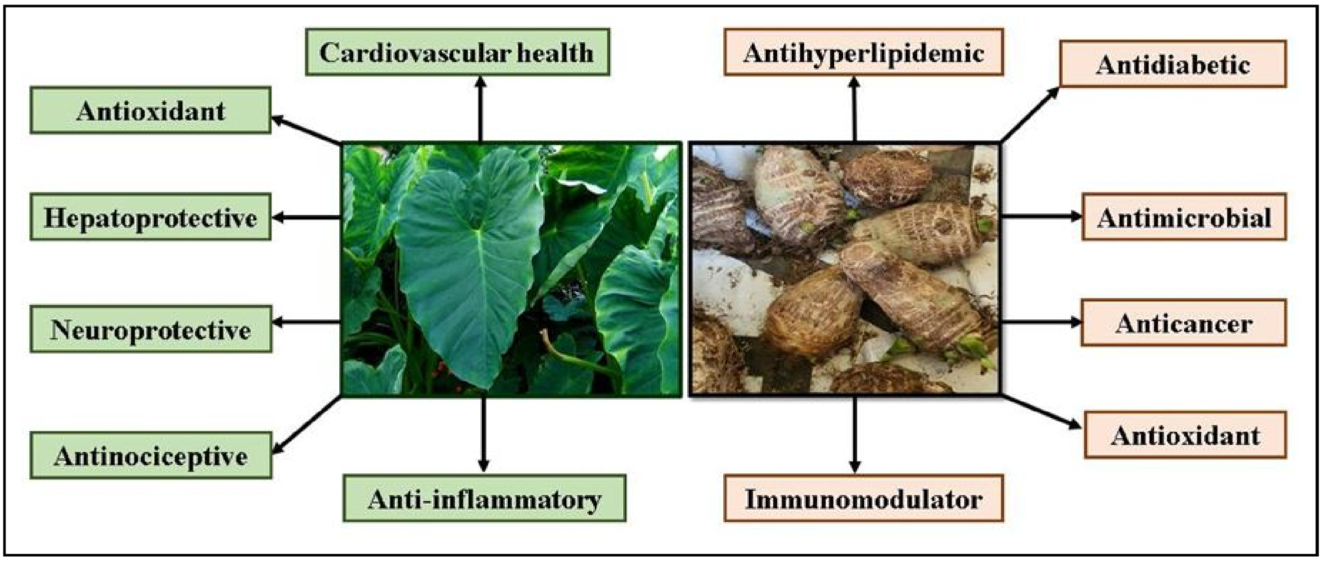


**Figure 1: Health benefit of *C. esculenta* leaves and tubers.**

## 1.1 Botanical description of *C. esculenta*

*C. esculenta*, commonly known as taro or elephant ear, is a perennial herbaceous plant belonging to the Araceae family. This species is characterized by its large, tuberous rhizomes and stolons, which play a crucial role in vegetative propagation. The plant's leaves are radical, displaying a heart-shaped to arrowhead-shaped morphology with prominent venation. These leaves can grow to impressive sizes, reaching lengths of nearly 3 feet, making them a distinctive feature of the plant. The leaves are supported by long, thick, and fleshy petioles, which often exceed the length of the leaf blade itself. The petioles are sheathed at the base, providing structural stability and facilitating nutrient transport (Patel and Singh, 2023). The reproductive structure of *C. esculenta* consists of an inflorescence composed of a spathe and spadix. The spathe, typically pale yellow in color, can grow up to 40 cm in length, enclosing the spadix. The spadix is divided into three distinct sections: female flowers located at the base, sterile flowers in the middle, and male flowers positioned above (Patel and Singh, 2023). Despite its ability to produce flowers, *C. esculenta* rarely generates seeds, relying predominantly on rhizomes for propagation. Native to tropical Asia, *C. esculenta* has been widely cultivated across tropical and subtropical regions for its edible corms and leaves, which serve as staple food sources in many cultures. The plant's adaptability and nutritional value have contributed to its global distribution and economic importance. Beyond its culinary uses, *C. esculenta* is also recognized for its ecological role and potential medicinal properties, making it a subject of interest in both agricultural and pharmacological research.

## 1.2 Geographical distribution of *C. esculenta*

*C. esculenta*, is native to tropical Asia, particularly southern India and Southeast Asia, as documented by the CABI Digital Library. Over time, it has been widely cultivated and naturalized across various regions worldwide, becoming a significant agricultural and cultural resource. In Asia, taro is extensively grown in countries such as China, India, Malaysia, the Philippines, and Indonesia, as well as in Nepal, Bangladesh, and other parts of Southeast Asia, where it serves as a staple food and plays a vital role in local diets and economies. In the Pacific Islands, including Hawaii and Papua New Guinea, taro holds immense cultural and economic importance, deeply embedded in the culinary practices and heritage of these regions. In Africa, taro cultivation is prominent in West and North Africa, with major producing countries including Nigeria, Ivory Coast, and Ghana, as highlighted by Rashmi *et al.* (2018) and Matthews and Ghanem (2021). Its adaptability to diverse agroecological conditions has made it a crucial crop for food security in these areas. In the Americas, taro is found in the Caribbean and parts of Central and North America, including Florida and Texas, where it is often considered invasive due to its aggressive growth and ability to outcompete native vegetation. In Europe, taro is cultivated in regions such as Cyprus and Turkey and has naturalized in several European islands, including Madeira, Malta, and the Canary Islands, demonstrating its adaptability to varying climates. In Australia, taro has naturalized in regions such as Queensland, New South Wales, and Western Australia, where it is valued as a food crop in some areas but classified as an invasive species in others due to its potential to disrupt local ecosystems. The widespread distribution of *C. esculenta* underscores its adaptability and importance as a global crop. Its cultivation spans tropical, subtropical, and even some temperate regions, reflecting its versatility and economic value.

## 2. Bioactive compounds of *C. esculenta*

*C. esculenta*, is a nutrient-rich plant with a diverse array of bioactive compounds in its leaves, flowers, and tubers. These components contribute to its nutritional value and therapeutic potential, making it a valuable resource for both dietary and medicinal applications.

### 2.1 Leaves

The leaves of *C. esculenta* are highly nutritious and contain a variety of bioactive compounds. They are rich in crude protein (307 g/kg dry weight) and dietary fiber (204-303 g/kg dry weight), making them an excellent source of essential nutrients (Ejoh *et al.,* 1996; Mitharwal *et al.,* 2022). The leaves are also abundant in minerals such as potassium, iron, and zinc, which are vital for metabolic and physiological functions. Additionally, they are a good source of vitamins A, B, and C, contributing to their antioxidant and immune-boosting properties (Yantih *et al.,* 2023; Biodiversity for Food and Nutrient). Phytochemical analysis reveals the presence of flavonoids, including vicenin-2, iso-vitexin, and orientin, which exhibit antioxidant and anti-inflammatory activities (Patel and Singh, 2023). Anthocyanins, such as cyanidin-3-rhamnoside and cyanidin-3-glucoside, further enhance the leaves' antioxidant and hepatoprotective effects (Patel and Singh, 2023). Carotenoids, another group of bioactive compounds found in the leaves, contribute to their antioxidant capacity (Dwivedi *et al.,* 2016). However, the leaves also contain calcium oxalate crystals, which can be toxic if not properly cooked, necessitating careful preparation before consumption (Patel and Singh, 2023; Yantih *et al.,* 2023).

### 2.2 Flowers

The flowers of *C. esculenta* are less protein-dense compared to the leaves (149 g/kg dry weight) but still contain notable amounts of minerals such as iron and zinc (Ejoh *et al.,* 1996). They exhibit a balanced amino acid profile, comparable to the FAO reference pattern, making them a valuable dietary component.

### 2.3 Tubers (Corms)

The tubers, or corms, of *C. esculenta,* are a rich source of starch, constituting up to 85% of their dry matter, with flour containing 73-76% starch (Ejoh *et al.,* 1996; Wills *et al.,* 1983). The primary proteins in the tubers are globulins, accounting for approximately 80% of the total protein content (Ejoh *et al.,* 1996). They are also abundant in essential minerals, including potassium, calcium, magnesium, iron, and zinc, which support various physiological functions. Despite their low-fat content and absence of omega-3 fatty acids, the tubers are a valuable energy source and contribute to a balanced diet. Phytochemical analysis of the tubers reveals the presence of alkaloids, glycosides, flavonoids, terpenes, and phenols, which contribute to their therapeutic properties. Additionally, taro polysaccharides (TPS-1 and TPS-2) have been shown to exhibit immunomodulatory effects, enhancing the plant's potential for medicinal applications (Ribeiro Pereira *et al.,* 2022).

## 3. Pharmacological activities of *C. esculenta*

*C. esculenta*, has been extensively studied for its diverse pharmacological activities, which are attributed to its rich phytochemical composition. Various parts of the plant, including the leaves, stems, and corms, have demonstrated significant therapeutic potential in preclinical studies. These activities include antimicrobial, antioxidant, anti-inflammatory, antidiabetic, hepatoprotective, neuroprotective, and anticancer properties. The plant's extracts, such as ethanolic, methanolic, and aqueous, have been evaluated using *in vitro* and *in vivo* models, revealing its efficacy in addressing a wide range of health conditions. For instance, ethanolic leaf extracts have shown strong antimicrobial and antioxidant activities, while methanolic extracts of corms exhibit antidiabetic potential through alpha-amylase inhibition. Additionally, taro polysaccharides and mucilage have demonstrated anti-inflammatory and anticancer properties, highlighting the plant's versatility as a source of natural therapeutics. Table 1 summarizes the pharmacological activities of *C. esculenta*, the plant parts used; extract types, experimental models, and key findings, providing a comprehensive overview of its medicinal potential.

**Table 1: Reported pharmacological activities of *C. esculenta***

| Pharmacological activities | Plant part | Extract type | Model | Conclusion | Reference |
|---|---|---|---|---|---|
| Antimicrobial and antioxidant | Leaves | Ethanolic | *In vitro* assays | Showed inhibition against bacteria and fungi, strong antioxidant activity ($IC_{50}$ = 22 µg/ml) | El-Mesallamy *et al.*, 2021 |
| Anthelmintic | Leaves | Aqueous and ethanolic | Earthworm model | Significant anthelmintic activity at 50 mg/ml | Kubde *et al.*, 2010 |
| Antimicrobial and anti-inflammatory | Leaves | Ethanolic | *In vitro* assays | Effective against bacteria and fungi, moderate anti-inflammatory activity | Agyare *et al.,* 2016 |
| Antihyperglycemic and antinociceptive | Leaves | Methanolic | Swiss albino mice | Dose-dependent blood sugar reduction and pain relief | Akter *et al.*, 2013 |

| | | | | | |
|---|---|---|---|---|---|
| Antihepatotoxic and hepatoprotective | Leaves | Juice | *In vitro* liver slice model | Reduced hepatotoxicity markers in paracetamol and CCl4-induced toxicity | Patil and Ageely, 2011 |
| Anti-inflammatory | Stem | Ethanolic | *In vitro* (RBC membrane stability) | High activity at 25 ppm (82.58% inhibition) | Cahyani *et al.*, 2023 |
| Antioxidant, antimicrobial and thrombolytic | Leaves | Methanolic | *In vitro* assays | Strong antioxidant, anti-microbial, and clot-lysis properties | Kashif *et al.*, 2025 |
| Neuroprotective | Leaves | Methanolic and n-butanol | Monosodium glutamate-induced excito-toxicity in rats | Prevents neuronal damage, contains polyphenols | Khazaal *et al.*, 2024 |
| Antioxidant | Whole Plant | Not specified | *In vitro* assays | Higher phenolic content in micropropagated plants | Akshatha *et al.*, 2018 |
| Antioxidant and alpha -amylase inhibitory | Corm | Methanol | *In vitro* assays (FRAP, DPPH, DNS) | Moderate antioxidant and amylase inhibition suppor-ting antidiabetic potential | Kasote *et al.*, 2011 |
| Starch digestibility and glycemic index | Corm | Not specified | *In vitro* starch digestion | Medium glycemic index, suitable dietary carbohy-drates for diabetics | Simsek and El, 2015 |
| Anti-inflammatory (COX-2 inhibition) | Corm | Mucilage | *In vivo* (ulcer ated rat colon) and *in vitro* assays | Improved histopathology, ulcer index, and inflam-mation markers | Fayek *et al.*, 2021 |
| Cytotoxicity (Cancer cell lines) | Leaves | Ethanolic | Five human cancer cell lines | Dose-dependent cytotoxi-city with $IC_{50}$ values ranging from 93.2 to 223.08 µg/ml 93.2 to µg/ml | Jyothi and Murthy, 2020 |
| Cancer chemoprevention and anti-inflammation | Corm | Sulphated Polysaccharide | Breast cancer cells (MCF-7), macrophages | Strong tumor anti-initi-ation, apoptosis, and immunomodulation | Gamal-Eldeen *et al.*, 2021 |
| Antibacterial | Leaves | Methanol, aqueous | *E. coli, K. pneumoniae* (MDR strains) | Moderate antibacterial activity, methanol extract more effective | Rabiu *et al.*, 2022 |
| Antitumor activity in gastric cancer | Corm | Methanolic | AGS gastric cancer cells | Inhibits cancer cell growth *via* apoptosis and cell cycle arrest | Esposito *et al.*, 2024 |
| Antimicrobial and antifungal | Leaves | Ethanolic | *Aspergillus niger, Botryodiplodia theobromae* | Significant inhibition of fungal pathogens | Ehiobu and Ogu, 2018 |

## 4. Summary and future perspectives on *C. esculenta*

This review comprehensively examines the bioactive compounds and pharmacological activities of *C. esculenta*, emphasizing its potential as a source of natural therapeutics. The primary bioactive constituents identified in *C. esculenta* include flavonoids, alkaloids, saponins, and phenolic compounds, which collectively contribute to its diverse pharmacological properties. These compounds have been shown to exert significant antioxidant, anti-inflammatory, antimicrobial, anticancer, neuroprotective, antidiabetic, immunomo-dulatory, hepatoprotective, and wound-healing effects. The pharmacological impact of *C. esculenta* is particularly notable in three key areas: metabolic regulation, neuroprotection, and immune modulation.

### 4.1 Metabolic regulation

The antidiabetic and antihyperlipidemic properties of *C. esculenta* are attributed to its ability to modulate blood sugar levels and improve lipid profiles. For instance, flavonoids and phenolic compounds in the plant have demonstrated alpha-amylase inhibitory activity, which supports its potential in managing diabetes. Additionally, the medium glycemic index of taro corms makes it a suitable dietary carbohydrate for individuals with metabolic disorders.

### 4.2 Neuroprotection

The neuroprotective effects of *C. esculenta* are linked to its polyphenolic content, which helps prevent neuronal damage caused by oxidative stress and excitotoxicity. Studies have shown that methanolic and n-butanol extracts of taro leaves can mitigate monosodium glutamate-induced neurotoxicity in animal models, highlighting its potential in addressing neurodegenerative diseases.

### 4.3 Immune modulation

Taro polysaccharides, particularly TPS-1 and TPS-2, have been found to enhance immune response, making the plant a promising candidate for immunomodulatory therapies. These polysaccharides also exhibit anti-inflammatory properties, further supporting their therapeutic potential.

Despite the promising findings, further research is needed to standardize extraction techniques, optimize bioactive compound yields, and clinically validate the efficacy of *C. esculenta*-based therapeutics. Future studies should focus on specific health disorders, such as diabetes, cancer, and neurodegenerative diseases, to develop targeted treatments. Additionally, the safety profile, dosage, and long-term effects of *C. esculenta* extracts need to be thoroughly investigated to ensure their suitability for human use.

## 5. Conclusion

In conclusion, *C. esculenta* exemplifies a promising natural resource for the development of novel therapeutics, owing to its rich phytochemical composition and diverse pharmacological activities. The integration of traditional medicinal knowledge with advanced scientific research has validated its potential in addressing a spectrum of health conditions, including metabolic disorders, neurodegenerative diseases, and immune-related ailments. However, to fully harness its therapeutic capabilities, future research must prioritize the standardization of extraction methods, rigorous clinical validation of its bioactive compounds, and the development of targeted formulations for specific diseases. By bridging the gap between traditional applications and modern pharmacological advancements, *C. esculenta* holds immense potential to contribute to sustainable, plant-based healthcare solutions, paving the way for innovative treatments in global medicine.

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## Conflict of interest

The authors declare no conflicts of interest relevant to this article.

## References

**Arif, S.; Sharma, A. and Islam, H. M. (2022).** Plant-derived secondary metabolites as multiple signalling pathway inhibitors against cancer. Ann. Phytomed., **11**(1):189-200.

**Akshatha, M.; Raju, M. and Prasad, P. (2018).** Antioxidant potential and phenolic content in micropropagated *Colocasia esculenta* plants. Plant Cell Biotechnol. Mol. Biol., **19**(3):233-240.

**Akter, M.; Rahman, M.M.; Hasanuzzaman, M.; Rana, M.M. and Saha, S.K. (2013).** Antihyperglycemic and antinociceptive effects of methanolic extract of *Colocasia esculenta* leaves in Swiss albino mice. Bangladesh J. Pharmacol., **8**(3):271-278.

**Banu, Z.; Poduri, R.R. and Bhattamisra, S.K. (2024).** A comprehensive review on phytochemistry, health benefits, and therapeutic potential of Elaeocarpus angustifolius Blume. Ann. Phytomed., **13**(1):370-383.

**Banu, Z.; Poduri, R. R., and Bhattamisra, S. K. (2025).** Phytochemical profiling, in silico molecular docking and ADMET prediction of alkaloid rich fraction of *Elaeocarpus angustifolius* Blume seeds against Alzheimer's disease. Nat. Prod. Res., 1-9. https://doi.org/10.1080/14786419.2025.2477211.

**Cahyani, R.; Puspita, R.A. and Wulandari, A. (2023).** Anti-inflammatory effects of ethanol extract of Colocasia esculenta stem through RBC membrane stability assay. Indones. J. Pharm. Nat. Prod., **5**(2):112-118.

**CABI Digital Library. (2023).** *Colocasia esculenta* - Datasheet. Retrieved from https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompendium.17221.

**Esposito, T.; Sansone, A.; Franceschelli, S.; Di Meo, F.; Landolfi, A.; Rossi, F. and Cirino, G. (2024).** Activity of *Colocasia esculenta* (Taro) corms against gastric adenocarcinoma cells: Chemical study and molecular characterization. Int. J. Mol. Sci., **25**(2):452.

**Fayek, N.M.; Mouneir, S.M.; Monem, A.R.A.; Abdelwahab, S.M. and Eltanbouly, N.D. (2021).** *Colocasia esculenta* L. Schott corm mucilage: A selective COX-2 inhibitor for the treatment of irritable bowel syndrome. Pharmacogn. Mag., **17**:387-390.

**Gamal-Eldeen, A.M.; Amer, H.; Fahmy, C.A.; Dahlawi, H.; Elesawy, B.H.; Faizo, N.L. and Raafat, B.M. (2021).** Tumor anti-initiation and anti-progression properties of sulphated extract of Colocasia esculenta. Pol. J. Food Nutr. Sci., **71**(4):393-401.

**Gamal-Eldeen, A.M.; Amer, H.; Fahmy, C.A.; Dahlawi, H.; Elesawy, B.H.; Faizo, N.L. and Raafat, B.M. (2023).** Immunomodulatory properties of *Colocasia esculenta* corm polysaccharides. Int. Immunopharmacol., **123**:110102.

**Jain, K.; Rizwani, F. and Thakkar, S. (2023).** A Review on Pharmacological activities of *Colocasia esculenta*. Res. J. Pharmacogn. Phytochem., **15**(2):125-132.

**Jyothi, R. and Murthy, K.M.S. (2020).** Cytotoxic potentiality of *Colocasia esculenta* leaves extract on five different cancer cell lines using MTT assay. Int. J. Green Pharm., **14**(4):375-376.

**Kashif, M.; Parveen, R.; and Alam, M. (2025).** *In vitro* antioxidant, antimicrobial, and thrombolytic activities of *Colocasia esculenta* leaf extract. Biomed. Pharmacother., **150**:124567.

**Matthews, P.J.; and Ghanem, M.E. (2021).** Perception gaps that may explain the status of taro (*Colocasia esculenta*) as an "orphan crop". Plants People Planet, **3**(2):99-112.

**Mitharwal, S.; Kumar, A.; Chauhan, K. and Taneja, N.K. (2022).** Nutritional, phytochemical composition and potential health benefits of taro (*Colocasia esculenta* L.) leaves: A review. Food Chem., **383**:132406.

**Naaz, S.; Banu, Z.; Nikilitha, G. and Mujeeb, S. A. (2024).** Pharmacological benefits of *Gerbera jamesonii* Adlam flower: Qualitative and quantitative analysis of the extract. J. Phytonanotechnol. Pharm. Sci., **4**(2):30-36.

**National Parks Board Singapore. (2023).** Flora Fauna Web - *Colocasia esculenta*. Retrieved from https://www.nparks.gov.sg/florafaunaweb/flora/1/8/1835.

**North Carolina State University (2023).** Plants Database - *Colocasia esculenta*. Retrieved from https://plants.ces.ncsu.edu/plants/colocasia-esculenta/.

**Patel, A. and Singh, J. (2023**). Taro (*Colocasia esculenta* L): Review on its botany, morphology, ethnomedical uses, phytochemistry, and pharmacological activities. Pharma Innov. J., **12**(2):5-14.

**Rabiu, I.; Yusha'u, M. and Abdullahi, A.M. (2022).** Antibacterial activity of *Colocasia esculenta* leaf extracts against multidrug-resistant extended spectrum β-lactamase producing Escherichia coli and Klebsiella pneumoniae. Bayero J. Pure Appl. Sci., **13**(1):589-599.

**Ribeiro Pereira, P.; Bertozzi de Aquino Mattos, É.; Nitzsche Teixeira Fernandes Correa, A.C.; Afonso Vericimo, M.; and Margaret Flosi Paschoalin, V. (2020).** Anticancer and immunomodulatory benefits of taro (*Colocasia esculenta*) corms, an underexploited tuber crop. Int. J. Mol. Sci., **22**(1):265.

**Shah, Y.A.; Saeed, F.; Afzaal, M.; Waris, N.; Ahmad, S.; Shoukat, N. and Ateeq, H. (2022).** Industrial applications of taro (*Colocasia esculenta*) as a novel food ingredient: A review. J. Food Process. Preserv., **46**(11):e16951.

**Simsek, S. and El, S.N. (2015).** In vitro starch digestibility, estimated glycemic index and antioxidant potential of taro (*Colocasia esculenta* L. Schott) corm. Food Chem., **168**:257-261.

**Shruti Rai; Satyanaryan Jena; Sudhir Shukla and Swati Sharma (2023).** A comprehensive review on phytochemistry and pharmaceutical-potential of opium poppy (*Papaver somniferum* L.). Ann. Phytomed., **12**(2):225-233.

**Wills, R.B.; Lim, J.S.; Greenfield, H. and Bayliss Smith, T. (1983).** Nutrient composition of taro (*Colocasia esculenta*) cultivars from the Papua New Guinea highlands. J. Sci. Food Agric., **34**(10):1137-1142.

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