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Sweet Potato (*Ipomea batatas* (L) Lam.: A Nutritional and Valuable Medicinal Food

Pinki Mohapatra*, Samarendra Narayan Mallick, Sarita Biswal and Vijay Bahadur Singh Chauhan

Regional Centre, ICAR-Central Tuber Crops Research Institute, Bhubaneswar, Odisha (751 019), India

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Corresponding Author

Pinki Mohapatra

e-mail: mohapatrapinki9@gmail.com

Keywords

Ipomea batatas, Phytochemical, Staple food, Sweet potato

Abstract

Sweet potato (*Ipomea batatas* L.) is a useful tuber vegetable. It has many beneficial properties like anti-oxidative, anti-diabetic, anti-cancer, anti-inflamatory activities and it is possible due to the presence of phytochemicals like saponin, flavonoids, phenolic compounds *etc*. in it. It also consists of many nutritional values so it considered as a valuable staple food.

Introduction

Ipomoea batatas (L) Lam. belongs to the family Convolvulaceae, commonly known as sweet potato, an important root vegetable which is starchy and sweet in taste. It ranks the sixth most food crop in the world among the staple food. Many researchers focused on medicinal herbs to get plant-based medicines but they don't overlook many vegetables which also possess nutritional and medicinal properties for human nutrition and animals feeding (Pochapski *et al.,* 2011; Bhuyan *et al*., 2022). It contains phytochemicals like saponin, flavonoids, terpenoids, tannins *etc*. which possess many beneficial activities such as anti-oxidant, anti-mutagenic, anti-inflamatory, antimicrobial and anti-carcinogenesis; thus are important for human health, and the root tubers contains no saturated fat or cholesterol. It also has many nutritional benefits such as it is the rich source of dietary fibres, vitamins and minerals. It is reported that sweet potato leaves contain polyphenols and at least 15 anthocyanins and 6 polyphenolic compounds than other vegetables like spinch, cabbage, and lettuce. Thus, it provides many valuable properties like nutritional, medicinal, biological and phytochemical activities which make it a valuable medicinal and nutritional food (Pochapski *et al.,* 2011).

Systematic Position

Division	Tracheophyta
Subdivision	Spermatophyta
Class	Magnoliopsida
Superorder	Asternae
Order	Solanales
Family	Convolvulaceae
Genus	Ipomoea
Species	Ipomoea batatas (L.) Lam

Vernacular Names

State	Name
Odia	Kandamula

Article History

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E-mail: *bioticapublications@gmail.com*

Hindi	MithaAlu, Shakarkanda
Bengali	Sakarakhanda
Assamese	Goriaalu, MithaAlu
Species	*Ipomoea batatas* (L.) Lam

Habitat

Sweet potato is a perennial crop originated from the tropical regions in America which is now cultivated in more than hundred countries. Commercially it is produced in countries like India, China, Indonesia, Vietnam, Japan, Tanzania. The Sweet potato production is very smaller amount in many parts of Africa; whereas with large production in East African areas like Lake Victoria, Nigeria, Ghana *etc*. (Pochapski *et al.,* 2011).

Morphology

Sweet potato, a herbaceous perennial vine with various coloured flesh ranges between yellow, red, brown, orange, and purple (Figure 1) and it is characterised by their starch content. The orange fleshed sweet potato is characterized by their high beta carotene content while the presence of anthocyanin makes it the purple colour. Thus, it is also characterized by their colours, width, thickness and shapes of their leaves (Behera *et al*., 2022; Chauhan *et al.*, 2021).

Figure 1: Sweet potato plant in green house

Nutritional Values

Sweet potato has high nutritional values than other vegetables. It delivers 90% of nutrients per calorie which is mandatory for most peoples and it is one of the important subjects for food security. Its roots, leaves, petioles, used as animal feed, snack food, and the extraction and fermentation of starch are the main source of industries. The tuber of sweet potato is the main source of carbohydrates, dietary fibre, vitamins content like beta-carotene, vitamin B_2, vitamin C (Pati *et al.*, 2021; Behera *et al*., 2022).

Medicinal Values

According to many studies it has been reported than sweet potato has many different medicinal properties such as:

Anti-Oxidant Activities

Due to the presence of flavonoids, phenolic compounds in sweet potato, it contains many biological activities such as anti-oxidant activities which is present in purple fleshed sweet potato varieties, because it contains anthocyanins. Deteriorating diseases like cancer, asthma, diabetes *etc*. have their beginning in deleterious free radical reactions; whereas the anti-oxidant act as scavenging activity of free radicals (Figure 2) (Behera *et al*., 2022).

Figure 2: Anthocyanin rich purple flesh & β-carotene rich orange flesh sweet potato

Anti-Diabetic Activities

According to many studies, sweet potato has the potential to lowering the blood glucose level and to maintain the blood sugar levels. Leaf extract of sweet potato significantly reduces the level of blood glucose and hepatic enzymes activities in Alloxan-induced diabetic rats. Normally the anti-diabetic potential of sweet potato is due to the presence of phyto-chemical content flavone which extract from the leaves of sweet potato (Pochapski *et al.,* 2011; Behera *et al*., 2022).

Anti-Cancer Activities

The sweet potato extracts exhibit anti-cancer and anti-tumor properties. It inhibits the proliferation of apoptosis in prostate cancer cell and this anti-cancer activity is due to the presence of poly phenol content. Purple fleshed sweet potato is very rich in anthocyanins which have the inhibitory effect on growth of MCF-7 (breast cancer) and SNU-1 (gastric cancer) cancer cells.

Conclusion

According to the above statements in mind it demonstrates that, sweet potato is not only healthy for children and adults but also it is beneficial for cardiovascular health, prevention of diabetes, and reduces the risk of cancer.

References

Behera, S., Chauhan, V.B.S., Pati, K., Bansode, V., Nedunchezhiyan, M., Verma, A.K., Monalisa, K., Naik,

P.K., Naik, S.K., 2022. Biology and Biotechnological Aspect of Sweet Potato (*Ipomoea batatas* L.): A Commercially Important Tuber Crop. *Planta* 256, 40. DOI: 10.1007/s00425-022-03938-8.

Bhuyan, S., Mishra, S., Mallick, S.N., Biswal, S., Chauhan, V.B.S., 2022. Sweet Potato: Its Nutritional Factor and Health Benefits. *Biotica Research Today* 4(6), 450-452.

Chauhan, V.B.S., Behera, S., Pati, K., Bansode, V.V., Nedunchezhiyan, M., 2021. Breeding for drought tolerance in sweet potato (*Ipomoea batatas* L.). In: *Recent Advances in Root and Tuber Crops*, (Eds.) More, S.J., Giri, N.A., Suresh, K.J., Visalakshi, C.C. and Tadigiri, S. Brillion Publishing House, New Delhi, India, pp. 65-87.

Pati, K., Chauhan, V.B.S., Bansode, V.V., Nedunchezhiyan, M., 2021. Biofortification in sweet potato for health and nutrition security. In: *Recent Advances in Root and Tuber Crops*, (Eds.) More, S.J., Giri, N.A., Suresh, K.J., Visalakshi, C.C. and Tadigiri, S. Brillion Publishing House, New Delhi, India, pp. 21-30.

Pochapski, M.T., Fosquiera, E.C., Esmerino, L.A., Santos, E.B.D., Farago, P.V., Santos, F., A., Groppo, F.C., 2011. Phytochemical screening, antioxidant, and antimicrobial activities of the crude leaves' extract from *Ipomea batatas* (L) Lam. *Pharmacogn Mag* 7(26), 165-170. DOI: 10.4103/0973-1296.80682.