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SWEET POTATO - AN ANSWER TO NUTRITIONAL INSECURITY#

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Abstract

Sweet potato (Ipomoea batatas [L.] Lam)is cultivated in more than 100 countries as a valuable source of human food, animal feed and industrial raw material. The plant bears medium-sized sympetalous flowers in herbaceous perennial vine, and alternate heart-shaped or palmately-lobed leaves. The edible tuberous root is long and tapered with a smooth skin. It is valued for its short growing period of 90 to 120 days, high nutritional content, and its sweetness. The color of the smooth skin of the root tuber ranges between yellow, orange, red, brown, purple, and beige. Flesh ranges from beige to white, red, pink, violet, yellow, orange, and purple. Sweet potato varieties with white or pale yellow flesh are less sweet and moist than those with red, pink, or orange flesh. Varieties developed in India are usually grouped either as white or red type.

#General Article

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Sweet potato, which originated in Central America, is now widely cultivated and consumed throughout the world. European explorers introduced the crop to Africa and India by the early 1500s. Sweet potato ranks seventh among almost all food crops worldwide, with an annual production of 115 million metric tons. Approximately 92% of world's sweet potato supply is produced in Asia and the Pacific Islands: 89% of which is grown in China. In India, area under Sweet potato cultivation is 0.1 million hectares with production of 1.4 million tonnes. It is widely cultivated throughout India except Jammu and Kashmir. The main growing states of sweet potato are Bihar, Orissa, Uttar Pradesh, Madhya Pradesh, West Bengal, Karnataka and Maharashtra.

The plant has significant medicinal importance and various parts of the plant are used in traditional medicine. The leaves are used to treat type 2 diabetes by Akan tribes of Ghana, and in the treatment of inflammatory and/or infectious oral diseases in Brazil. In regions of Kagawa, Japan, a variety of sweet potato has been eaten raw to treat anemia, hypertension, and diabetes. The stems of sweet potato were used for treatment of prostatitis. The Monpa ethnic groups of Arunachal Pradesh, India, use the tubers of sweet potato as a staple food and the leaves as fish feed.

In many states, farmers are switching over sweet potato as it is very easy to grow; it's also a short duration crop with low input cost and high yield, it is also climate resilience (drought and heat tolerant) and has few pests or diseases. The sweet potato is also very nutritious and low in calories.

According to the USDA's national nutrient database, one medium, baked sweet potato with skin (2 inches in diameter, 5 inches long, approximately 114 grams) provides: 103 calories with 0 grams (g) of fat, 24 g of carbohydrate, including 4 grams of fiber and 7 grams of sugar, 2.3 grams of protein. One medium sweet potato will provide well over 100 percent of your daily needs for vitamin A, as well as: 25 percent of vitamin C, 25 percent of vitamin B6 and 12 percent of potassium. You'll also find small amounts of: calcium, iron, magnesium, phosphorus, zinc, vitamin E, thiamin, riboflavin and folate.

Sweet potato roots can be termed as a '3-in-1' product, as it integrates the qualities of cereals (high starch), fruits (high content of vitamins, pectin etc.) and vegetables (high content of vitamins, minerals etc.). Also, it has its advantages of high yielding, drought tolerance, and wide adaptability to various climate and farming systems over the world. Sweet potato's tubers have anti-diabetic, anti-oxidant and anti-proliferative properties due to the presence of valuable nutritional and mineral components.

Despite its high carbohydrate content, sweet potato has a low glycemic index due to low digestibility of the starch making it suitable for diabetic or overweighed people and consumers with an insulin resistance, because they have a low glycemic index. Knowledge of the glycemic index (GI) diet for diabetes may help to predict their daily diet in order to control a blood glucose level. In addition, some varieties of sweet potatoes contain colored pigments, such as β-carotene, anthocyanin, and phenolic compounds. Beta-carotene is converted into retinol or vitamin A by your body, and vitamin A contributes to optimal eye health, vision, a critical micronutrient for pregnant women and undernourished children. While taking vitamin A in large doses can be toxic, receiving it from beta-carotene is considered safe due to your body's ability to regulate its vitamin A production. Sweet potatoes can also contribute to skin health. Vitamin A, which is a natural anti-inflammatory, can help get rid of acne-causing bacteria.

Few cultivars are currently used for commercial production are: Pusa Safed and Pusa Red (Bihar and U.P.), Rajendra Sakarkand-5 (Bihar), H-268 (Maharashtra), Kanhangad Local (Kerela), H-41, H-42, H-268 and S-30(Andhra Pradesh).

Popular Varieties

Co 3, Co CIP 1, Sree Kanaka (high carotene sweet potato), SreeNandini, SreeVardhini, Kiran, SreeBhadra, SreeRathna, Gouri, Sankar, OP-1,,H-260, Cross-4, V-35 and Kalmegh.

Therefore, it is concluded that sweet potato can significantly improve the nutritional status and its tuberous roots, stems and leaves can be consumed and can solve food, energy, resource and environmental problem.

References

1. Bovell-Benjamin AC: Sweet Potato: A review of its past, present, and future role in human nutrition. Adv Food Nutr Res 2007;52: 1–59.)
2. FAO: FAO Production Yearbook, Rome, 1984.
3. Horton DE: World patterns and trends in sweet potato production. Trop Agric 1988;65:268–270.)
4. ICAR-CTCRI (2018) Central Tuber Crops Research Institute, Thiruvananthapuram, `Kerela
5. Performance of Improved Sweet Potato (Ipomeabatatas L.) Varieties in Makurdi, Southern Guinea Savanna of Nigeria. American Journal of Experimental Agriculture, 2(4): 573-586, 2012
6. Performance of Improved Sweet Potato (Ipomeabatatas L.) Varieties in Makurdi, Southern Guinea Savanna of Nigeria, American Journal of Experimental Agriculture, 2(4): 573-586, 2012
7. Sweet Potato (Ipomoea batatas [L.] Lam) - A Valuable Medicinal Food: A Review (2014) JOURNAL OF MEDICINAL FOOD J Med Food 17 (7) 2014, 733–741
8. Tarumoto I: Sweet Potato breeding in Japan: Its past, present and future. In: Improvement of Sweet Potato (Ipomoea batatas) in Asia, 1989, pp. 137–146)
9. Yen DE: The Sweet Potato and Oceania. Bishop Mus. Bull,Honolulu, 1974, pp. 236–389.
10. Zhao G, Kan J, Li Z, Chen Z: Characterization and im-munostimulatory activity of an (1/6)-a-D-glucan from the root of Ipomoea batatas. IntImmunopharmacol 2005;5:1436–1445.