Importance of sweet potato*Ipomoea batatas(*L.*) in* Human Nutrition

[1]Mamta Sahu,[2] Pragya Mishra, [3]Suman Devi & [4]Shashi Bala
Senior Research Fellow[1,2,3],Assistant Professor[4]
Chandra .Shekhar.Azad.University of Agriculture &Technology, Kanpur[1,2,3],
UP PG College[4], MGKVP,Varanasi,U.P. India.

Abstract

On the nutritive point of view sweet potato has high β carotene and anthocyanin contents whichhighlights sweet potato utilization. It has potential as value added products inhuman food systems and demonstrates the potential values of the sweet potato in theIndian diet. It has indicated that the sweet potato is a staple food source for manyindigenous populations in Central and South Americas. Protein contents of sweetpotato leaves and roots range from 4.0% to 27.0% and 1.0% to 9.0%, respectively.The sweet potato could be considered as an excellent novel source of naturalhealth promoting compounds, such as β carotene and anthocyanin, for thefunctional food market. Also, the high concentration of anthocyanin and β carotene in sweet potato combined with the high stability of the colour extract, which makes it apromising and healthier alternative to synthetic colouring agents in food systems.Starch and flour processing from sweet potato can generate new economic and employment activities for farmers and rural households, and can add nutritionalvalue to food systems. Repositioning sweet potato production and its potential forvalueadded products will contribute substantially to utilizing its benefits and manyuses in human food systems. Multidisciplinary, integrated research and development activities aimed to improving

production, storage, postharvest and processingtechnologies, and quality of the sweet potato and its potential valueadded productsare critical issues which should be addressed globally.

Index word: Tubers, sweet potato, anthocyanin, carotene, Chemical composition, value added products

Introduction

Sweet potato (*Ipomoea batatas (L.) Lam*.), commonly called as a patata, and it is a long-term species in a warm and hot climate zone and an annual plant (spring) in temperate zone. It is moisturerich and tubers are sweet in taste along with pleasant, aromatic smell. It has nutritive value higher than potato so that it is should be included in diet of every person in the world. (Ofori et al., (2005). The chief sources of nutrients are the tubers and leaves. Morphologically it consists of many shapes like spherical, oval, sphericaloval, fusiform and the colours are white, cream, yellow, orange, red, scarlet and even purple, depending on a cultivar (Maloney et al. 2012).On the basis of nutrition it is rich in carbohydrates (starches and simple sugars), protein, fat and fatsoluble vitamins. Moreover, cultivars with a yellow flesh also contain significant amounts of carotenes (Allen et al. (2012).It also has the medicinal property as the tubers of the sweet potato are used in many diseases like diabeties. It has anti-proliferative properties and due to the presence of valuable nutritional and mineral components it is also the excellent source of anti-oxidant (Jaarsveld et al. 2005; Abubakar et al. (2010).

According to various researchersof sweet potato, it is now popular as the sixth most important crop in the world. Due to the biochemical properties such as polyphenols, anthocyanins and dietary fibre and it is selected as a ecological controlledsystembyNationalAeronautics and space Administration (NASA) U.S. It is rich in nutritional components such as carbohydrates in the roots, stems and leavesas compared to theother vegetables. In many parts of the country its leaves are used as a vegetable because it is an excellent source of vitamin B, ß-carotene, iron, calcium, zinc and protein and provide more immunity against diseases. In the southern United States, it is the popular summer crops and commonly it used as a food, as livestock feed and for starch and alcohol production. There are many dishes which are cooked with its tips or it can be stored for further use by boiling. In Arkanas it becomes a very profitable leafy vegetable. The leaves of sweet potato in the form of leafy vegetable are now popular as it has a good nutritional value and antioxidant

property.The leaves of spinach and sweet potato are the similar in nutrient content such as average mineral and vitamin in a recently developed cultivar Suioh. The iron, calcium and carotenecontentare very high as compared to other major vegetables.Due to the presence of oxalic acid it is not consumed in large amount as food, hence sweetpotato processing should definitely be encouraged.

Polyphenols

such as caffeic, monocaffeoylquinic(chlorogenic), dicaffeoylquinic and tricaffeoylquinicacids, and are superiorin this regard to ot hercommercial vegetables (Ishiguro et al., 2004).

Chemical Composition

Sweet potato has a good chemical composition in their roots and tops regarding to human health. About 80 to 90 percent of sweet potato dry matter is made up of carbohydrates consisting mainly of starch andsugars with lesser amounts of pectins, hemicelluloses and cellulose.

On average starch constitutes 60 to70 percent of the dry matter, but the proportion of starch to other carbohydrates varies greatly. Sweetpotato also contains protein (0.46% to 2.93%), dietaryfiber (0.49% to 4.71%), li pid (0.06% to 0.48%) and ash(0.31% to 1.06%). It contains essential mineral nutrients such as Ca, P, Mg, Na, K, S, Fe, Cu, Zn, Mn, Al.

Sweetpotato is also an important source of vitamin A, thiamin, riboflavin, niacin, asc orbic acid many other functional compounds (Woolfe, 1992).

Antioxidative and Antimutagenicity

There are three steps of cancers which involved in initiation, promotion and progression in body cells. The leaves of this fruit act as a supplementary resource of antioxidants and antimutagenic compounds. It proves that its leave is act to check the cancer diseases.

Anti-Diabetes:

Diabetes-1(IDDM) & Diabetes -2 (NIDDM) which is caused by insulin hormone. The insulin was secreted by pancreatic Langerhans cells.

Foods withanti-diabeticeffect are desired fordiet therapy. Sweet potato leaf powder from the variety ‘Simon-1’strongly suppressed the growth ofO-157, and its effect was detectable even after autoclave treatmentThe antibacterial extract revealedthat the main comp onents were polysaccharides.

Value addition

It is an important food crop and it is also useful in industry such as to produce rawmaterial for producing starch, sugar and alcohol.These processesproduce wastes, and the cost of disposing of these wastes is a main cause of lowering profitability in food processing. Recently to utilize this waste the Toyota Motor Company, in cooperation with Mitsui Company, has begun production of biodegradable plastics from sweetpotatoes.

Sweet potato helps to maintain health of human beings due to rich in vitamins, minerals and many other nutrients.

Conclusion:

Sweet potato tops are capable to exit in adverse condition could serve as an extra leafy green vegetable. Sweet potato should be tender, glabrous and purplish. The stems and leaves can be consumed totally. This crop helps to solve food , energy, resource and environment.

Acknowledment: We all are very thankful to our institute which provide us the basic facilities which really required for any research.

References :

(1).Ofori G, Oduro I, Elis, HK Dapaah. 2005. Assessment of vitamin A content and sensory attributes of new sweet potato (Ipomoea batatas) genotypes in Ghana. AfricanJournal of Food Science 3, 184−192.

(2).Maloney K, Truong Van Den, Allen JC. 2012. Chemical Optimization of Protein Extraction from Sweet Potato (Ipomoea batatas) Peel. Journal of Food Science 77, 306−312.

(3).Allen JC, Corbitt AD, Maloney KP, Butt MS, Truong VD. 2012. Glycemic index of sweet potato as affected by cooking methods. The Open Nutrition Journal 6, 1−11

(4).Abubakar HN, Olayiwola IO, Sanni SA, Idowu M. A. 2010. Chemical composition of sweet potato (Ipomoea batatas Lam) dishes as consumed
Marczak et al Page 177 in Kwara state, Nigeria. International Food Research Journal 17, 411−416.

(5)..Ishiguro, K., J. Toyama, S. Islam, M. Yoshimoto, T.Kumagai, Y. Kai and O. Yamakawa. 2004. “Suioh, A New Sweetpotato Cultivar for Utilization in Vegetable Greens,” Acta Hortic 637:339-345.

(6).Islam, S., Y. Yoshimoto and O. Yamakawa. 2003. “Distribution and Physiological Function of Caffeoylquinic Acid Derivatives in Sweetpotato Genotypes,” J. Food Sci. 68:111-116.

(7.)Islam, S. 2006. “Sweetpotato Leaf: Its Potential Effect on Human Health and Nutrition,” J. Food Sci. 71:R13-R21.

(8).Villareal, R. L., S. C. Tsou, H. F. Lo and S. C. Chiu. 1982. “Sweetpotato Tips as Vegetables” in R. L. Villareal and T.D. Griggs (eds.). “SweetPotato.” Proceedings of theFirst International Symposium, AVRDC, Shanhua, Taiwan, pp. 313-320.

(9).Woolfe, J. A. 1992. Sweetpotato. An Untapped Food Resource, Cambridge University Press, Cambridge, U.K., pp. 118-187.