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# Bamboo Shoot as a Health Food

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## Introduction

Bamboos, the fastest growing plant belonging to the evergreen grass family Poaceae, is a widespread renewable, versatile, and environment enhancing natural resource. There are more than 87 genera of bamboo divided into about 1500 species. India has the second largest bamboo acreage after China and a total of 148 species belonging to 29 genera (both wild and cultivated) are reported. It is a multipurpose plant used as raw material for paper, handicraft, house construction, making furniture, water pipes, household items, apparels, cosmetics and health care products. Though known for its industrial uses, the utilization of the young shoots as food are known to very few people and are mainly consumed in the North-East Region of India. Bamboo shoot is the young emerging culms of bamboo plant and is a popular ingredient in South East Asian cuisine, China and Japan. The shoots have a crisp, crunchy taste and sweet flavour. And are used for making soups, curries, stir pies, salads etc. The young shoots are rich in nutrients such as proteins, carbohydrates, minerals, vitamins and bioactive compounds. Consumption of shoots is gaining popularity worldwide due to its nutritive value and health benefits. The health benefits of the young shoots are attributed to the presence of bioactive compounds mainly phenols, phytosterols and dietary fibers which play a potential role in health promotion and providing protection against, any chronic and degenerative diseases.



## Health enhancing properties of bamboo shoots

Bamboo shoots are being projected as a health food because of their nutrient content and presence of bioactive compounds.

- Rich in nutrients: Proteins, Carbohydrates, Amino acids, Minerals, and Vitamins.
- Good profile of minerals: Ka, Ca, P, Fe, Mg and Se.
- High content of dietary fiber.
- Rich in phenols that have antioxidant properties.
- High phytosterol content.
- Low Fat and Sugar.



## Value added edible products from bamboo shoots

Sl.No.	Bamboo Species	Shoot type	Product	Reference
1.	<i>Bambusa bambos</i> , <i>Bambusa tulda</i> , <i>Dendrocalamus asper</i> , <i>Dendrocalamus strictus</i>	Fresh	Crackers, nugget, pickle	Pandey et al., 2012
2.	<i>Dendrocalamus hamiltonii</i>	Fresh	Candy, chutney, chukh, cracker, nugget	Sood et al., 2013
3.	<i>Dendrocalamus hamiltonii</i>	Fresh	Cookies, chapatties, buns, snacks	Bisht et al., 2013
4.	<i>Dendrocalamus auriculata</i>	Fermented	Chicken nugget	Das et al., 2013
5.	<i>Bambusa polymorpha</i>	Fermented	Pork nugget	Thomas et al., 2014

## Comparative account of various nutrients (g/100 g) present in freshly emerged juvenile bamboo shoots and some common vegetables.

Species	Amino acids	Proteins	Carbohydrates	Starch	Fat	Vitamin C (mg/100g)	Vitamin E (mg/100g)	Dietary Fiber	Minerals(mg/100gm)							
									Ca	Mg	Mn	K	P	Se	Na	Zn
<i>Bambusa tulda</i>	3.65	3.69	6.92	0.59	0.48	1.42	0.61	3.97	4.06	8.68	0.70	408	19.31	0.4µg	12.96	0.72
<i>Dendrocalamus hamiltonii</i>	3.18	3.72	5.5	0.50	0.41	2.45	0.71	3.90	3.00	6.09	0.16	416	28.12	0.8µg	9.32	0.70
<b>WINTER VEGETABLES</b>																
<i>Amaranthus gangeticus</i> (Amaranth)	1.3	4.0	6.1	–	0.5	1.0	43.3	1.0	397.0	55.0	0.36	341	247	0.9µg	20.0	0.18
<i>Brassica oleracea</i> var. <i>botrytis</i> (Cauliflower)	0.4	5.9	7.6	–	0.4	2.5	46.4	2.0	33.0	15.0	0.20	303	57.0	0.6µg	30.0	0.40
<i>Spinacea oleracea</i> (Spinach)	0.3	2.0	2.9	–	0.7	0.6	28.1	2.0	99.0	79.0	0.90	558	49.0	0.1µg	79.0	0.50
<i>Solanum tuberosum</i> (Potato)	0.2	1.6	22.6	15.4	0.1	0.4	19.7	0.4	12.0	23.0	0.20	421	58.0	0.3µg	11.0	0.30
<b>SUMMER VEGETABLES</b>																
<i>Abelmoschus esculantus</i> (Ladies finger)	0.3	1.9	6.4	–	0.2	1.2	13.0	1.2	66.0	11.0	0.19	103	56.0	–	6.9	0.42
<i>Cucurbita maxima</i> (Pumpkin)	0.2	1.4	6.5	–	0.4	0.7	9.0	1.1	21.0	12.0	0.10	340	44.0	0.3µg	5.6	0.30
<i>Phaseolus vulgaris</i> (French bean)	0.3	18.8	20.1	–	2.0	4.6	–	1.8	186.0	188.0	1.20	1316	304	12.9µg	18.0	1.9
<i>Solanum melongena</i> (Brinjal)	0.2	1.4	4.0	–	0.3	1.3	12.0	1.3	18.0	10.0	0.13	200	47.0	0.02µg	3.0	0.22

\*Data taken from Gopalan and others (1971), Cantwell and others (1996), and USDA National Nutrient Database (2006). -- = valid authentic data not available.



Canned Bamboo Shoots



Bamboo Shoot Pickle



Bamboo Leaf Tea



Bamboo Shoot Cookies

## Health Benefits of Bamboo Shoots

Sl.no.	Benefits	Activity
1.	<b>Helps in Losing Weight</b>	Low amount of calories, carbohydrates and sugars contained in bamboo shoots makes it an ideal food for people who want to lose weight
2.	<b>Heart Health</b>	Phytosterols and Phytonutrients found in bamboo shoots are ideal for dissolving harmful LDL cholesterol in the body. This eases cholesterol out of arteries for the smooth supply and movement of blood throughout the body.
3.	<b>Controls Cholesterol</b>	Contain negligible amounts of fat and very low calories, helpful in decreasing LDL levels of cholesterol, with stable glucose levels
4.	<b>Fights Cancer</b>	Bamboo shoots are reported to have anticancer, antibacterial, and antiviral activity due to the presence of lignans that are an important component of fiber.
5.	<b>Strengthens the Immune System</b>	The vitamins, minerals, and antioxidants present in bamboo shoots are essential for strengthening the body's immune system.
6.	<b>Cleans the digestive system</b>	The amount of dietary fiber in bamboo shoots is high. Consuming sufficient amounts of dietary fiber is essential for easy digestion and healthy bowel movements
7.	<b>Anti-Inflammatory Properties</b>	Possess anti-inflammatory and analgesic (pain-killing) properties that helps in the healing of ulcers as well.
8.	<b>Prevents Stomach Disorders</b>	Bamboo shoots and bamboo leaves are suggested as a remedy for intestinal worms and stomach disorders as well.
9.	<b>Wound Cleaning</b>	Bamboo shoots are also used for cleaning wounds and sores.
10.	<b>Lowers Blood Pressure</b>	Bamboo shoots contain high amounts of potassium. Potassium is highly beneficial as an electrolyte and is also very good for lowering and maintaining blood pressure.

## Nutraceuticals Products



**Bamboo Silica**  
Anti-Aging Superfood



**Bamboo Extract**  
Dietary supplement



**Bamboo Skin Care**  
Active age corrective fluid with a natural retinol alternative



**Bamboo Facial Wash**  
Provides skin with the perfect base for adding make-up



**Bamboo Salt**  
Antioxidant, Anti-allergic, Anti-cancer, Anti-obesity.



**Bamboo Charcoal Moisturizer**  
Nourishes Skin, Balances Moisture, Prevents Dry Skin



## Conclusions

Scientific advances, awareness of personal health deterioration, increasing healthcare costs, busy lifestyles, insufficient exercise, and technical advances in the food industry have stimulated the field of health foods. Today, foods are not intended to only satisfy hunger and provide necessary nutrients for humans but also to prevent nutrition-related diseases and improve physical and mental wellbeing of consumers. Bamboo shoots, with their high nutritive value and bioactive compounds, hold great promise for utilization as a health food. Bamboo, a renewable natural resource, abundantly available in India, particularly in North-East India, can be harnessed for various purposes including food and medicine. Bamboo shoots are an excellent health food endowed with a number of nutrient element and bioactive compounds. It is the need of the time to use this neglected resource for the welfare of man.

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