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AGRODIVERSITY OF ANTI-CANCEROUS VEGETABLE CROPS IN INDIA

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Abstract: *Anticancerous properties of vegetable crops are well known worldwide. In present article we assess diversity of vegetable crops having anticancerous properties. It is widely believed that a diet rich in vegetables can reduce the risk of cancer. In 1990, the World Health Association recommended eating five servings of vegetables a day to prevent cancer and other diseases. But many studies since then have not been able to confirm a definitive association vegetable intake and cancer risk.*

Keyword: *Diversity, anticancerous crops*

Introduction: Cancer is a disease that begins in the cells of the body. In normal situations, the cells grow and divide as the body needs them. No more, no less. This orderly process is disturbed when new cells form that the body was not needed and old cells don't. These extra cells lump together to form a growth of tumor. Approximately 200 studies that examined the relationship between fruit and vegetable intake and cancers of the lung, colon, breast, cervix, esophagus, oral cavity, stomach, bladder, pancreas and ovary are reviewed for most cancer sites, persons with low fruit and vegetable intake (at least the lower one‐fourth of the population) experience about twice the risk of cancer compared with those with high intake even after control for potentially confounding factors. Strong evidence of a protective effect of vegetable consumption was seen in cancers of the pancreas and stomach as well as in colorectal and bladder cancers. It would appear that major public health benefits could be achieved by substantially increasing consumption of these foods.

Materials and Methods

Available literatures were studied for better understanding of concept of agro diversity of anticancerous vegetable crops present in India. Information regarding anticancerous vegetable crops from various journals and internet media was also used for availability and necessity for comprehensive understanding of the subject. A detail list of anticancerous vegetable crops, common name, botanical name, family, chemical compounds, plant part used, climate and optimum temperature for growth was prepared in table form.

Results and Discussion

We have found that twenty four vegetable crops containing the anti cancerous compound. This must be useful for people to cure the cancer of different part of the body. Mainly the cruciferous and Solanacious crops containing the anti cancerous compound. There are only the one vegetable of each family chenopodium, convoluaceae, liliaceae contain the compound. The compound sulphofuphane and glucosinolate compound are mostly found in cruciferous crops.

The compound lycopeane and carotoinides are found in most of the vegetable crops. As shown in (Table 1) different compound are helpful to cure different part of cancerous property. In most of the vegetable and fruit crops are containing the anti cancerous compound. But the few vegetable contain which root is used to consume like beetroot and radish also contain the anti cancerous compound. Most of the vegetable crops are indigenous to the mediterranean region and two vegetable of India containing the compound like lycopean and glycoalkoloid are useful to cure the cancerious property, there are

bulb crops containing the anti cancerous compound [1, 2, 3]. The result we found the vegetable are the richest source of mineral and vitamins as it also contain the anti cancerous compound, which will be helpful to the person to overcome the cancerous property. The vegetables have a strong protective effect against various types of cancer [4, 5, 6, 7]. There has been much speculation with respect to the substances that might account for this beneficial quality of these foods. For a number of years carotene was strongly suspected of being anti-carcinogenic. A considerable research effort is now underway to identify the anti-carcinogenic vitamins and phytochemicals [8, 9, 10, 11, 12, 13] responsible for the cancer-preventing action of vegetables. This strategy has great potential public health importance. The findings may permit the formulation of dietary advice that will have the optimum preventive impact on cancer [14, 15, 16, 17, 18]. The findings also will help in the quest for anticancer supplements that are effective yet safe and cheap.

Table 1. Diversity of anticancerous crops of India

S. N	Common Name	Botanical name	Family	Chemical compounds	Part used	Climate	Optimum temperature for growth
1	Broccoli	Broccoli (Brassica oleracea var.italica)	Crucifereae	Sulforaphane	Flower bud	Cool climate	18-250C
2	Brussels sprouts	Brussels sprouts (Brassica oleracea var gemifera	Crucifereae	Sulforaphane	Showlen stem	Cool climate	18-250C
3	Patta gobhi	Cabbage (Brassica oleracea var capitata	Crucifereae	Glucosinolates	Head	Cool and moderate warm	18-250C
4	Phool gobhi	Cauliflower (Brassica oleracea var botrytis L.)	Crucifereae	Glucosinolates and Allyl isothiocyanate	Curd	Cool and moderate warm	18-250C
5	Tamatar	Tomato (Lycopersicon esculentum Mill)	Solanaceae	Lycopene	Fruit	Moderate	20-250C
6	Lashoon	Garlic (Allium sativumL.)	Amarlidaceae	Allicin	Bulb	Moderate	20-250C
7	Payaj	Onion (Allium cepa L.)	Amarlidaceae	Quercetin	Bulb	Both cool & moderate	20-250C
9	Baigan	Eggplant (Solanum melongena L.)	Solanaceae	Glyco alkaloids	Fruit	Moderate	20-250C
11	Aalu	Potato (Solanum tuberosum L.)	Solanaceae	Carotenoid .	Modified stem	Cool	25-270C
12	Sakarkand	Purple Sweet Potato (Ipomoea batatas (L) Lam.)	Convolvulaceae	Anthocyanins and Antiangiogenic	Roots	Cool	25-270C
13	Shimla mirch	Bell Pepper (Capsicum annum)	Solanaceae	Rich in antioxidant vitamin C	Fruit	Cool	20-250C
14	Kaddu	Pumpkin (Cucurbita moschata (Duch.) Poir)	Cucurbitaceae	Beta carotene	Fruit	Warm	20-250C
15	Muli	Radish (Raphanus sativus L.)	Crucifereae	vitamins A, B-6, C, K, riboflavin and folic acid	Root	Moderate and cool	18-250C
16	Tarbuj	Watermelon. (Citrullus lanatus Thunb.)	Cucurbitaceae	High amounts of lycopene and glutathione	Fruit	Warm	25-270C
17	Chukandar	Beetroot (Beta vulgaris L.)	Chenopodiacea e	Betalains	Root	Moderate and cool	18-250C
18	Asparagus	Asparagus (Asparagus officinalis L.)	Liliaceae	Antioxidant glutathione	Leaf	Cool	18-250C
19	Parsley	Parsley (Petroselinum crispum Mill.)	Umbelliferae	Monoterpenes, phthalides, and polyacetylenes	Leaf	Cool	18-250C
20	Artichokes	Artichokes (Cynara) (Cynara scolymus L)	Compositae	Silymarin	Leaf	Cool	20-250C
21	Gaajar	(Daucus carota L.)	Umbelliferea Carrots –	Luteolin, and retinoids.	Root	Moderate and cool	18-250C
22	palak	Spinach and watercress (Spinacia oleracea L.)	Chenopodiacea e	Retinoids and lycopene	Leaf	Cool and moderate	18-250C
23	Chappan kaddu	Squash (summer and winter) (Cucurbita pepo L.) (Cucurbita maxima Duch.)	Cucurbitaceae	Lycopene and Lutein,	Fruit	Warm	20-250C

Conclusion

Vegetables are the most important part of our food which are consumed daily but unfortunately very few of us know that they provide significant protection against many cancers and other diseases. Consumption of vegetables is widely accepted as lowering the risk of several cancers. The antioxidant vegetables prevent from cancer and other diseases by protecting cells from damage. Although essential in diets not enough vegetables are available especially to poor families an developing countries. Rates of production of vegetables cannot satisfy consumer demand and these micronutrient-rich food sources are often too expensive for the poor. Production of vegetables unfortunately is often accompanied by misuse and abuse of pesticides with their negative effects on human health and potential impact on the environment. In the least developed countries, the consumption of vegetables is declining (FAO 2004b). Steps must be taken to reverse this trend through provision of a range of safe, affordable and nutritious vegetables.

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