Himachal Journal of Agricultural Research 36 (1): 117-120, 2010

Short Note

Nutritional contribution of recipes prepared from commonly consumed vegetables of Himachal Pradesh

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Abstract

The most commonly consumed vegetables in Himachal Pradesh are colocasia, carrot, potatoes and many more. The different types of the recipes can be prepared like *Arbi ki sabji, Arbi ka madra, Haryai wali arbi, Gajar aloo and Gajar ka halwa* etc. From the study it was found that the protein, fat and crude fiber was observed maximum in *Arbi ka madra* whereas crude fiber was found minimum in *Arbi ki sabji* (0.50g/100g on fresh matter basis) and maximum in *arbi ka madra* (2.23g/100g on fresh matter basis). In all the recipes the calcium content was found in good amount. β- carotene was found maximum in *haryai wali arbi* (9294 µg/100g on fresh matter basis), whereas the ascorbic acid content was found maximum in *gajar ka halwa* (28 mg/100 g) on fresh matter basis.

Key words: Vegetables, nutritional value, recipes, Himachal Pradesh.

Plants are the source of many types of food besides cereals. There are hundreds of common vegetables eaten in different parts of the world. Despite the great variety of botanical structure, vegetables possess the same general nutritive properties. With the industrial revolution, to meet the needs of the cities, large commercial market gardens were started. Regular supplies of vegetables, either fresh, frozen or canned, should be an essential part of good living and good feeding. Vegetables add elegance and attractiveness of a meal. All the vegetables contain dietary fibre, most vegetables contain amounts of calcium and iron that are probably physiologically significant, small amounts of the B group of vitamins, but their contribution to the total intake is seldom great. Most leafy vegetables are fair sources of riboflavin. Green leafy vegetables are fair source of proteins about 2-7 per cent, but they are rich sources of pro-vitamin A (carotenes) and ascorbic acid and good sources of folic acid and calcium.

Roots and tubers are, in general, good sources of starch (Swaminathan, 1988). A poor woman with insufficient iron, vitamin A and ascorbic acid in her diet may find great improvement in her health as a result of taking good helping of garden vegetables a day (Passmore and Eastwood, 1987). With above mentioned facts in mind, the present investigation was undertaken.The vegetable samples were procured from the local market of the Palampur region of Kangra district of Himachal Pradesh. Various recipes were prepared from colocasia, potatoes and carrots. The prepared recipes were dried, homogenized and stored in air tight containers for the further chemical analysis. The proximate composition was estimated by using AOAC (1991) methods. Carbohydrates were calculated by multiplication method from protein, fat and carbohydrates contents. Calcium and iron were analyzed using atomic absorption spectrophotometer (Piper, 1950). β-carotene estimation was done by using the method given by Rao (1967) and ascorbic acid of the recipes was determined using the method AOAC (1995).

The nutrient composition of vegetable-based recipes (on fresh matter basis) is presented in the table 2. Moisture content of the cooked recipes was found to range between 8.80-78.20 g/100g minimum in *gajar ka halwa* and maximum in *haryai wali arbi*. Protein and fat was found minimum in *haryai wali sabji* (2.08 and 2.81g/100g, respectively on fresh matter basis). *Arbi ka madra* showed maximum content of the protein and fat i.e. 4.48 and 12.75g/100g, respectively on fresh matter basis. *Gajar ka halwa* showed minimum ash content (1.19 g/100g on fresh matter basis) and *gajar aloo* maximum content of the ash i.e. 3.50 g/100g on fresh matter basis. Crude fiber content was found to range between 0.50-2.23 g/100g on fresh matter basis minimum in *arbi ki sabji* and maximum in *arbi ka madra*. Carbohydrate content was found to

Table 1. General description of the recipes commonly consumed in H. P.

S.N.	Name of recipe	Description of recipe	Ingredients used	Weight of ingredients (g/ml)
1	*Arbi ki sabji*	*Sabji* prepared from boiled colocasia	Colocasia (Boiled peeled)	700
			Tomato	100
			Onion	100
			Green chillies	3
			Garam masala	10
			Turmeric	5
			Coriander powder	5
			Cumin seeds	2.5
			Salt	10
			Mustard oil	10 ml
2	*Arbi ka madra*	Colocasia, deep fried & cooked with curd	Colocasia (Boiled peeled)	600
			Onion	50g
			Garlic	5g
			Ginger	5g
			Chillies	3
			Garam masala	10
			Turmeric	5
			Coriander powder	5
			Cumin seeds	5
			Curd	500
			Water	120 ml
			Salt	10
			Oil	20 ml
3	*Haryai wali Arbi*	Boiled colocasia cooked in spinach leaves paste	Colocasia (boiled peeled)	600g
			Spinach	100g
			Tomato	150g
			Onion	100g
			Garlic	5g
			Ginger	5g
			Green chillies	2
			Garam masala	10
			Turmeric	5
			Coriander powder	5
			Cumin seeds	5
			Salt	10
			Mustard oil	40 ml
			Water	750 ml
4	*Gajar aloo*	Carrot and potatoes vegetable	Carrot	500
			Potato	500g
			Onion Ginger	50g
			Garlic	10g
			Chillies	5g
			Turmeric	5
			Coriander powder *Garam masala*	5 10
			Oil	50 ml
			Salt	10
5	*Gajar ka halwa*	Carrot *halwa*	Carrots	700g
			Sugar	500g
			Milk	500g
			Ghee	50g

Table 2. Nutrient composition of vegetables based recipes (on fresh matter basis)

Nutrients	*Arbi ki sabji*	*Arbi ka madra*	*Haryai wali arbi*	*Gajar aloo*	*Gajar ka halwa*
Moisture (g)	71.80	60.8	78.20	60.60	8.80
Protein (g)	2.80	4.48	2.08	3.58	3.49
Fat (g)	4.24	12.75	2.81	4.51	9.49
Ash (g)	2.98	3.10	2.15	3.50	1.19
Crude fibre (g)	0.50	2.23	0.63	1.64	0.79
CHO (g)	17.68	13.68	14.13	26.17	76.24
Energy(Kcal)	120	98	90	169	404
Calcium (mg/100g)	661	858	397	946	638
Iron (mg /100g)	2.89	7.98	4.02	4.91	10.54
β-carotene (µg/100g)	2809	796	9294	1737	504
Ascorbic acid (mg/100g)	1.40	2.20	0.20	12.00	28.00

be minimum in *Arbi ka madra* (13.68 g/100 g) and maximum in *gajar ka halwa* (76.24 g/100 g). *Gajar ka halwa* showed good amount of energy content (404 Kcal/100 g, on fresh matter basis). All the recipes showed good amount of calcium, iron and β-carotene. The ascorbic acid content ranged between 0.20-28.0 mg/100 g on fresh matter basis minimum in *haryai wali arbi* and maximum in *gajar ka halwa.*

Data on per cent nutrient composition of recipes based on vegetables on dry matter basis are presented in table 3.

Table 3. Nutrient composition of vegetable-based recipes (on dry matter basis)

Nutrient	*Arbi ki sabji*	*Arbi ka madra*	*Haryai wali arbi*	*Gajar aloo*	*Gajar ka halwa*
Protein (g)	9.94	11.48	10.01	9.08	3.83
Fat (g)	15.04	32.70	13.50	11.44	10.95
Ash (g)	10.57	7.96	10.35	8.89	1.31
Crude fibre (g)	1.76	5.71	3.05	4.16	0.87
CHO (g)	62.69	42.15	63.09	66.43	83.04
Energy (Kcal)	426	509	414	405	446
Calcium (mg/100g)	2343	2200	1911	2400	700
Iron (mg/100g)	10.24	20.46	19.35	12.46	10.46
β-carotene (µg/100g)	792	312	2026	580	461
Ascorbic acid (mg/100g)	0.04	0.86	0.04	4.73	22.54

The minimum protein (3.83 %), fat (10.95 %), ash (1.31 %), crude fiber (0.87 %) and calcium (700 mg/100 g) content was found in *Gajar ka halwa* whereas, maximum protein (11.48 %), fat (32.70 %), ash (10.57 %), crude fiber (5.71 %), energy (509 Kcal), iron (20.46 mg) was found in *Arbi ka madra.* Iron content was found to be maximum (20.46 mg) in *Arbi madra* and minimum (10.24 mg) in *Arbi ki sabji. Haryai wali arbi* contained maximum amount of β -carotene (2026 µg/100 g) whereas *Arbi madra* contained minimum amount of β -carotene (312 µg/100 g). Ascorbic acid content was found to be minimum in *Arbi ki sabji* and *Haryai wali arbi* (0.04 mg/100g) and maximum (22.54 mg/100g) in *Gajar ka halwa.*

These vegetables are commonly consumed in Himachal Pradesh and are found to be good source of nutrients, whereas *Gajar ka halwa, Gajar aloo* and *Haryai wali arbi* were observed rich in ascorbic acid, calcium and β-carotene. Therefore, the preparations based on these vegetables can be used to improve the nutritional status of vulnerable section of the society.

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