

## Evaluation of nutritional facts and health benefits of red cabbage (*Brassica oleracea* var. *capitata* f. *rubra*)

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### Abstract

Red cabbage is the cole crop contain red or purple colour of leafy head due to the presence of anthocyanin pigment. The aim of this research is to evaluate many health benefit properties internally (anticancer, antidiabetic and antiulcer) and externally (improve skin colour and loss of body weight). Red cabbage is the good source of abundant nutrients viz; proteins, vitamins, energy, carbohydrates and minerals which protect humans from many harmful diseases. It is also used for food processing or garnishing to increases the aesthetic value of food/beverages. From the above findings the results shows, red cabbage is the best souce of nutrients and health properties.

**Keywords:** Red cabbage, anthocyanin, glycoalkaloids, nutrition

### Introduction

Cruciferae vegetables plays an important role in the human diet worldwide but popular in USA, China, India, Japan and Europe countries. It is originated from Europe in the 16th century and native of the Mediterranean region mainly by mutation and introgression from wild species during evaluation or by human selection (Izzo *et al.* 2020). The general hypothesis is that ancient people were attracted by the fleshy leaves and tender shoots of wild *Brassica* species. These were introduced into home gardens where less pungent and richer plants were selected. In the Middle Ages, that the word *capitata* was used to designate the headed cabbage (Maggioni *et al.* 2010). Red cabbage (*Brassica oleracea* var. *capitata* f. *rubra*) is the cool season vegetable and it is different from white cabbage in case of head and leaf colour. Red or purple cabbage is an herbaceous, biennial, dicotyledonous flowering plant. Sulfur containing substances are co-extracted with the pigment producing a disagreeable odour (Sharma *et al.* 2012). It contain purple or red colour due to the presence of pigment known as anthocyanin, which is predominant over other 10 flavanoids. Red cabbage having the strongest antioxidant capacity to anthocyanins which has a power of 150 flavanoids (Fernandis *et al.* 2019). Anthocyanin concentration in red cabbage is 322mg/

100 gm (Singh *et al.* 2015). Glucosinolates are the group of organic compounds contain sulfur and nitrogen, are present in red cabbage or it convert glucosinolates to isothionates and indoles when vegetables are cut (Selvakumar *et al.* 2013).



Red Cabbage

### Uses

Red cabbage is used as raw for salad, fermented for sauerkraut or liquid products as juices, soups, curries and other cooking purposes like pickles, boiled and steamed purposes (Sarkar *et al.* 2017).

### Nutritional properties

The word “nutrition” is the material important in the form of food for support and prevent life. Most

of the people suffer from malnutrition and poor health diseases like kwashiorkor because of they consume lack of fruits, vegetables and animal products in their diet other than only use or eat starchy food (Adelanwa *et al.* 2015). It contain more amount of nutritional properties as compare to common or white cabbage which we need viz; water, protein, fat, energy (31 k cal), vitamin A (40 I.U), ascorbic acid (61 mg) and a special substance that has the activity of vitamin P (a bioflavonoid) etc. that increase man's resistance to disease. The flavouring agent in red cabbage is due to 3 - butenyl isothiocyanate and 2 - propenyl isothiocyanate (Singh *et al.* 2015). In some recent studies shown that as compare to boiled or fermented, raw cabbage can provide higher amount of certain nutrients. Softening of the texture of red cabbage during boiling is due to the hydrolysis of components i.e. cellulose, pectic substances etc., located in the spaces between plant cells (Maria *et al.* 2020)

Nutritive value of red cabbage per 100 g of edible portion

Constituents	Quantity
Water	90 gm
Protein	2.0 gm
Fat	0.2 gm
Sodium	26 mg
Calcium	42 mg
Iron	0.8 mg
Vitamin A	40 I.U
Thiamine	0.09 mg
Riboflavin	0.06 mg
Ascorbic acid	61 mg
Carbohydrates	6.9 g
Energy	31 Kcal

#### Health benefits of red cabbage

All the cole group of crops are beneficial for humans in their immune and digestive system, enzymes created in fermentation make vitamins and minerals easier to digest. These glucosinolates preventive against breast cancer, oxidative damages and bladder cancer (Singh *et al.* 2015). Red and white cabbage having antioxidants are antiulcer, antidiabetic and anticancerous properties which reduce the risk of diseases and contain abundant source of health-promoting substances which protects us from cancer, premature aging, diabetes, ulcer and Alzheimer's

diseases. Also the red cabbage helps in weight loss, immune system booster and detoxification of body (Sarkar 2017). Red cabbage is the best source to contain fibers, in which insoluble fibres help to prevent from constipation and soluble fiber helps to lower blood sugar and blood cholesterol level therefore helps in reducing risk of heart diseases and diabetes. So, the study revealed that increased dietary intake of red cabbage may be beneficial for patients with liver cancer (Chauhan *et al.* 2016).



Health benefits of Red Cabbage

#### Conclusion

In conclusion, the results reveals by researchers that the red cabbage is the best source of nutrients and anti-cancerous properties. Red cabbage having vitamin C content which prevent from scurvy. Red cabbage is an exotic crop which can play many roles in the upcoming changes in agriculture diversity.

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