

Research  
Paper

## Traditional fermentation of mustard green (*Brassica juncea*) enhances the nutritive value

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### ABSTRACT

The leaf mustard plant or mustard green scientifically known as *Brassica juncea* (Cruciferae) are widely used as vegetables having high nutritive value and a good source of natural antioxidants. Fermented foods are popular throughout the world and in Manipur make a significant contribution to the diet of many individuals. In the study, effect of the traditional fermentation processes of mustard green on the nutritive value were assessed and found that the protein, flavonoid, tannins and phenolic contents increases after fermentation though carbohydrates, ascorbic acid decreases. The antioxidant properties of methanolic extract from fresh and fermented products were also assessed and it was found that the percent inhibition was higher in the fermented products (76.81% in 60 m/ml) against fresh leaves (66.30% in 60 m/ml)

Sarangthem, Kananbala and Hoikhokim (2011). Traditional fermentation of mustard green (*Brassica juncea*) enhances the nutritive value, *Adv. Res. J. Crop Improv.*, 2 (2) : 154-157.

**KEY WORDS :** Mustard leaves, Fermented, Nutritive

The leaf mustard plant or mustard green scientifically known as *Brassica juncea* belongs to the family Cruciferae. They are widely used as vegetable throughout the world. Cruciferous vegetables are high nutritive value and a good source of natural antioxidants due to high level of carotenoids, tocopherols and ascorbic acid (Heinon *et al.*, 1989). Two special glucosinolates sinigrin and gluconasturian which can be converted into allyl-isothiocyanate and phenethyl-isothiocyanate a well documented cancer preventive are present in mustard green ([www.http// wikipedia.com](http://wikipedia.com)).

Mustard green are available surplus during the peak season (December - April) and they cannot be preserved longer in the fresh form due to the rapid decay cause by microbial action So, in Manipur preservation of mustard green is done through traditional fermentation locally known as (Ankam thu). In addition to preservation fermented foods provides the bio nutrients minerals and fortified with bio active compounds enhancing the flavor and aroma and exert health promoting beneficial (Darby, 1979, Cambell-Platt, 1994, Steinkraus, 1998). Microbial fermentation resulted in significant variations in bio chemical contents (Sucheta and Chhetry, 2003).

Therefore the present work was carried out to study the effect of fermentation on the nutritive value of mustard green.

### RESEARCH PROCEDURE

Fresh mustard leaves were pluck from the garden, washed thoroughly under tap water; sun dried and then kept in an oven at 40°C for 12 hrs. The dried leaves were grounded into fine powder form and passed through a sieve and kept for analysis of biochemical contents.

#### Traditional methods of fermentation:

Fresh mustard leaves were pluck from garden in bulked, clean and spread over bamboo mat (locally called pheh) in the sun. The wilted leaves were crushed using traditional wooden crusher. The juice was extracted by squeezing with hand, and then boiled for ten minutes to slurry. It was stored in a hollow bamboo container for year long as reserved fermented food.

#### Estimation of total phenolic content:

Phenolic contents were estimated by the method of Donald *et al.* (2001). A known weight of fresh and fermented samples were extracted in methanol by intermittent maceration upto 48 hrs, centrifuge and the supernatants were used for the estimations. Chlorogenic acid was used as the standard and absorbance was measured at 765nm.