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Research Paper :

Chemical composition of finger rhizomes of *Curcuma aromatic* L. and *Curcuma longa* L.

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ABSTRACT

Biochemical constituents in the finger rhizomes of two genotype *Curcuma aromatic* L. and four genotype of *Curcuma longa* L. were evaluated for proximate composition on a dry weight basis. The contents of Moisture,ash,crude protein, crude fat, crude fiber and total carbohydrates were in the range of 7.01-7.91,4.34-5.07,4.05-7.09, 2.66-4.46, 2.09-3.67 and 73.47-78.31 per cent respectively.Among the rhizomes of six genotypes examined, genotype CA 62/1 had the highest content of acid value(4.72%). Genotype Salem contained the highest amount of curcumin (3.43%). The curcumin content in turmeric dry rhizomes varied from 3.11-3.43 per cent.

Key words : Curcumin ,Crude fat, Crude protein, Crude fiber, Total carbohydrates acid value

Turmeric is one of the well known spices commonly used in a variety of Indian dietary preparations to impart colour, flavor and taste to the food. It has been in use traditionally as a natural medicine due to its anti-inflammatory, anti-bacterial,anti-fungal and anti-tumor activities (Shrimal, 1993).Curcumin as an active ingradient present in turmeric (3 to 5 per cent) is responsible for biological activity and acts as a colouring agents to food,fiber,wood and several preparations. Some of the polysaccharides in turmeric were known to have anticancer, antioxidant and anti-microbial activity (Dhawan,1993). The joint FAO/WHO expert committee on food additives has included turmeric in the provisional list and has temporarily recommended the acceptable daily intake for turmeric and curcumin as 2.5 and 0.1 mg/Kg of body weight,respectively (Bhavanishankar *et al.*, 1986,). Several researchers have studied the biochemical composition of mother and finger rhizomes of turmeric(Anonymous,1950; Pruthi,1979;Natrajan and Lewis,1980;Farrell,1985;Viasan *et al.*,1989 and Rakhunde, *et al.*, 1998). The biochemical composition of rhizomes and fingers as indicated by these researchers were in the range of 4.03 to 8.9% crude fat, 4.05 to 8.6% protein, 2.6 to 1.6% crude fibers and 59.15 to 71.95% carbohydrates. Looking to the scanty information available on chemical composition of some of the promising and the popular cultivars of Maharashtra, the present investigation was undertaken to evaluate proximate composition, curcumin content and acid value of crude fat extracted from two different species of the turmeric *viz.*, *Curcuma aromatic* L. and *Curcuma longa* L. grown on black cotton soil at Turmeric Research Centre, Digraj, Dist. Sangali.

MATERIALS AND METHODS

The freshly harvested finger rhizomes of two promising cultivars from Curcumin aromatic L. and four popular cultivars of *Curcuma longa* L. were selected for the present study. After the harvest of the produce, the rhizomes were processed into dry rhizomes by following usual practice of curing by cooking in iron pan and drying under sunlight. The cured rhizomes were brought to the laboratory and dried in hot air oven for constant weight. The dried product was ground to a fine powder, sieved through 40 mesh sieve and stored in plastic containers for analysis. The proximate composition of powdered samples *viz.*ash, protein (N×6.25 =crude protein), crude fiber and crude fat (by Soxhlet extraction method) was determined by the standard A.O.A.C. (1990) methods on a dry weight basis. The total carbohydrate content was determined by difference *i.e.* by summing up and subtracting other parameters from hundred. The curcumin (g/100g) was determined by using the methods described by Sadasivam and Manickam(1991).The acid value of extracted oil was determined by A.O.A.C.(1990) method.