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# Physical and chemical properties of dry chillies (*Capsicum annuum* L.) grown in north Karnataka under rainfed conditions

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## ABSTRACT

An investigation was undertaken to study the variation in physical and chemical characteristics of fruits of chilli cultivars extensively cultivated in north Karnataka. Fruits of Sankeshwar cultivar have highest size (36.00 L/B ratio), whereas those of G-4 cultivar have lowest (5.11). Highest single fruit weight (1.93 g) was observed for Byadgi dabbi cultivar while lowest was recorded for Sankeshwar. The contribution of pericarp, seed and pedicel to whole fruit weight was to the extent of 47 to 55, 38 to 47 and 6 to 11 per cent, respectively. On an average moisture content in fresh chilli fruits ranged from 70.00 to 81.00 per cent while in sundried brittle fruits it ranged from 7.50 to 13.41 per cent. Protein content in cultivars ranged from 10.71 to 14.55 per cent and while total ash content ranged from 5.66 to 6.97 per cent. The values of VEE and NVEE which indicate flavour and non-volatile fatty oil are in the range of 0.20 to 0.43 and 14.56 to 16.17 per cent, respectively.

**Key words :** L/B ratio, Pericarp, Total ash, Volatile ether extract, NVEE

Dry chillies (*Capsicum annuum* L.) constitute the principle article of commerce and are produced all over India. During 2006-07 India exported 1.69 lakh tons of dry chillies valued at Rs. 906.44 crores (Anon., 2008). In Karnataka, the crop is being extensively grown in Dharwad, Gadag, Haveri, Belgaum, Shimoga, Bellary and Chitradurga districts which together account for 70 per cent of chilli production in the state. The important varieties grown in North Karnataka are Byadgi kaddi, Dyavnur, Byadgi dabbi, Sankeshwar and Guntur (G-3 and G-4). So far no systematic studies have been conducted on the technological aspects of these local varieties. To cover this gap, studies were initiated to evaluate the physical and chemical characters of these chillies grown in north Karnataka and part of Andhra Pradesh which together account for 50 per cent of country's production. The physical and chemical properties of fruit samples of chilli varieties extensively grown in Karnataka and Andhra Pradesh are presented and discussed in this paper.

## MATERIALS AND METHODS

Representative fruit samples of six chilli varieties were procured from the Byadgi chilli market in Karnataka during 2006 and 2007 which is recognised internationally as grading market for marketing and export of chillies. Ten sundried fruits were collected randomly from the composite samples of these six chilli varieties. Length was measured excluding pedicel and breadth was measured at the base of the fruit with vernier calipers. Average length/breadth (L/B ratio) for ten fruits was computed (Pankar and Magar, 1978a). These fruits were weighed and partitioned into pericarp, seed and pedicel components. These individual components were weighed separately and converted to 100 g fruit weight. These fruits were observed visually for colour, wrinkles and brightness.

Moisture, protein, total ash, non-volatile ether extract and volatile ether extract were determined as per standard AOAC methods given by Mahindru (1987).

## RESULTS AND DISCUSSION

Medium sized fruits containing few seeds with firm stalk and thick pericarp having bright red colour fetch highest price in the market. The results of physical characteristics of different varieties of chilli fruits are presented in Table 1. Varieties differ in colour, size, shape, weight, pericarp, seed and pedicel contents. Average single fruit weight ranged from 0.61 to 1.93 g, length from 7.66 cm in Guntur-4 variety to 18.00 cm in Sankeshwar variety. The lowest L/B ratio (5.11) was observed in G-4 variety closely followed by Byadgi dabbi (6.11) indicating that the fruits are round, while it was highest (36.00) in Sankeshwar variety followed by Byadgi kaddi (23.57) pointing that fruits are long and slender (Table 1). Hence, wide variation was observed between the cultivars for L/B ratio and shape of fruits which is genetically controlled. Maurya *et al*. (1984) reported similar observations for few varieties of chilli extensively cultivated in India with little alterations in size of fruits can be effected to translocation of photosynthates and nutrients to fruits.