



Research Paper

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High performance liquid chromatographic (HPLC) separation of capsanthin content of paprika (*Capsicum annuum* var. Longam) cv. KTPL-19 under drip fertigation system

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ABSTRACT : Paprika (*Capsicum annuum* var. *longum*) is one of the important natural food colourants next to turmeric. Precised application of fertilizers and water through drip irrigation plays a vital role in enhancing the productivity and quality of many horticultural crops. With this view, studies were conducted on paprika at the College orchard, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, during 2006-2009 to find out the effect of different sources and levels of potassium on capsanthin content under drip fertigaion condition with reference to high performance liquid chromatographic (HPLC) separation method. A simple, rapid high performance liquid chromatography method has been used in order to separate and quantify the capsanthin present in paprika fruits. A reversed-phase isocratic non-aqueous system allows the separation of xanthophylls within a few minutes, with detection at 450 nm, using methyl red as internal standard to locate the various carotenoids and xanthophylls found in plant extracts. High performance liquid chromatographic analysis for separation of capsanthin pigment revealed that the treatment T₇ (Drip fertigation with water soluble fertilizer at 100 per cent RDF using MAP + Multi-K + SOP) showed major peaks with overall percentage of 24.32 per cent and 24.67 per cent during season I and season II, respectively. The treatment T₆ (Drip fertigation with water soluble fertilizer at 75 per cent RDF using MAP + Multi-K + SOP) ranked second followed by T₄, T₃, T₅ and T₂. The chromatogram results revealed that the treatment T₇ (Drip fertigation with water soluble fertilizer at 100 per cent RDF using MAP + Multi-K + SOP) performed higher area when compared to T₆, T₄, T₃, T₅, T₂ and the least by T₁ (100% Recommended normal fertilizer applied to soil with furrow irrigation) during both seasons.

KEY WORDS : Paprika, KtPl-19, Drip fertigation, Potassium, HPLC, Capsanthin

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Paprika (*Capsicum annuum* var. *longum*) belonging to the family Solanaceae originated from Western Hemisphere of the world. International spice traders use the term paprika for non pungent, red capsicum powder. Capsicum in a fresh state is very rich in vitamin C (ascorbic acid), (Anu and Peter, 2000). Paprika contains remarkable amount of the colouring material and is used as colourant in processed foods as they get the nod over synthetic products in the food colourant market. The trade and use of paprika in powder form are increasing rapidly. The powder is mainly used

for adding natural colour to the finished products and to make the products more acceptable by the consumers. Besides colouring it is also used for flavouring and garnishing of eggs, cheese, meat dishes, sea foods and salads etc. Paprika requires heavy manuring for proper growth and producing high yields. Besides, potassium improved fruit colour as well as oleoresin content in capsicum (Yodpetch, 2001). Further, micronutrients such as S, Mg and Ca are also known to considerably influence the growth, yield and quality of paprika. Balanced fertilization with sulphur enhances the quality in paprika, particularly the