

**INFLUENCE OF COLOUR MULCHES ON PHOTOMORPHOGENESIS AND
 PRODUCTIVITY OF SWEET PEPPER (*Capsicum annum* cv. Baladi)
 BY**

Mady, M.A.*; Schrotter, S.; El-Desouky, S.A.* and Schnug, E.****

* Dept. of Botany, Fac. of Agric. Moshtohor, Benha Univ., Egypt.

** Institute of Plant Nutrition and Soil Science (FAL), Braunschweig, Germany

ABSTRACT

AS the photomorphogenesis and the role of red light in plant growth and development now is being more clarified; this article aimed to study the response of sweet pepper to the red and black mulch colour using drip irrigation system. Branching, leaf area, leaves dry weight, flowering and fruiting as well as quality of fruits and their content of crude protein, amino acids and some elements were evaluated in two years study. Of the main results obtained were that significant increase of branches number and each of photosynthetic area and pigments as well in plants grown over red mulch.

Also, earliness of flowering and fruiting, increases of early and total yielded fruits as well as improving of fruit quality and their content of crude protein, amino acids and some elements in red mulch even when compared with black mulch or the bare soil were confirmed. Thereby, present study strongly admit the use of red mulch in pepper and other economic vegetables production. In addition, further studies about the mechanism of flowering evocation and the formation of more than one fruit on the same node as well as increasing the number of formed branches are being still needed further studies.

INDRODUCTION

Growth and development of photosynthetic plants those dependent on photosynthetically active radiation (PAR) as their source of energy; are intimately tied to changes in the light environment (Alba *et al.*, 2000).

In this respect, plastic mulches are widely used to conserve water by blocking rapid evaporation from the soil surface, enhanced soil biological activity, control weeds with less herbicides, increased plant growth and development, enhanced early yield, increased yield and improved quality and keep fruit clean in the production of tomato, pepper and other vegetable crops (Decoteau *et al.*, 1990; Lamont, 1993 and Kasperbauer and Hunt, 1998). Also, in this respect applying water through trickle-irrigation tubes located below the plastic mulch can provide enough water for optimal

growth, improved water-use efficiency and avoid nutrient leaching by excessive rainfall.

Plants sense both the quantity (fluence) and quality (Wavelength) of light and respond in many ways, ranging from germination to timing of flowering. But for the various aspects of plant photomorphogenesis, phytochrome remains the most investigated photoreceptor (Kevi and Nagy, 2003).

Recently, many investigations hypothesized that changing mulch color could keep those benefits, while also reflecting a yield-enhancing morphogenic light signal to the growing plants (Kasperbauer and Hunt, 1998 and Kasperbauer, 2000).

Also, Briggs and Olney (2001) concluded that a plant's ability to maximize its photosynthetic productivity is depending on