Poster

EFFECTS OF HIGH TEMPERATURE STRESS AFFECTING CHILLI (*CAPSICUM ANNUUM.L*) CULTIVATION IN SRI LANKA

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ABSTRACT

Among abiotic stresses high temperature is one of the main environmental stresses that limit growth, metabolism and productivity of chilli cultivations in Sri Lanka. With the climate change constantly rising temperature is considered one of the most detrimental stresses to plants. Heat stress cause adverse alterations in plant growth, development, physiological activities and ultimately yield. It affects plant process like germination, growth, development and reproduction of the plants. Inhibition of seed germination due high temperature occurs due to induction of abscisic acid. High temperature causes loss of cell water content, reduction in net assimilation rate and ultimately the growth is reduced. Therefore, effects of high temperature responses of eight varieties of chilli (*Capsicum annuum* L.) were observed during *yala* 2015 at Field Crops Research and Development Institute, Mahailluppallama. The trial was laid in the open field with an air temperature between 24.5 -35°C and inside plant house with an air temperature between 27.5-45.4 °C. Days to 50% flowering, plant height at second pick (cm), pod length (cm) at first and fifth picks, pod width at first and fifth picks (cm), number of pods per plant, individual pod weight at first and fifth picks (g), pod yield per plant (g) were recorded.

Morphological symptoms of heat stress were scorching of leaves, damage to leaf-tip and margins, and rolling and drying of leaves, senescence and abscission of leaves and flowers, deformation and malformation of flowers and pods and reduction of number of pods were observed. High range of temperature interfered with the performance of plant by reducing number of days to flowering, increased sterility and death of pollen, flower abscission, malformation of flowers and fruits and poor fruit setting. It also affected the growth, development and physiological processes by reducing fruit size, fruit weight and number of fruits per plant and ultimately reduction of yield. All most all varieties behaved similarly for high temperature stress. Therefore adaptation, and tolerance of chilli varieties to high temperature at the cellular and whole plant levels should be studied and suitable breeding method should be used to develop thermo tolerance varieties of chilli in Sri Lanka.