

## SCREENING FOR DROUGHT ENDURANCE OF LOCALLY AVAILABLE CHILLI INBRED LINES

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Cultivation of chilli (*Capsicum annum* L.) in poor moisture conditions may mask the potential yield. Objectives of present study were to identify elite inbred lines for drought endurance using agro-morphological and yield of chilli in a simulated low moisture stress. Experiment was conducted at Field Crops Research and Development Institute, Mahalluppallama, during *Maha* season 2015/16. A two factor factorial experiment namely, inbred lines (08) and irrigation regimes (02) were tested using replicated pot plants arranged using a complete randomized design in a rain shelter house. Eight inbred lines (MICHPL52, MICHPL12, MICHPL20, MICHPL28, Galkiriyagama, MICHPL40, MICHPL48 and MICHPL13) and two irrigation regimes (7 days and 20 days) where the latter represent a severe moisture stress. Yield related canopy morphology was influenced by moisture stress as leaf area showed more than 20 cm<sup>2</sup> reduction ( $p=0.029$ ), while leaf temperature was higher in two units ( $p=0.039$ ) in stressed conditions. Despite significant differences, number of leaves, number of branches, plant height, canopy width and chlorophyll content were lower in plants under stress. MICHPL12, MICHPL20 and MICHPL28 illustrated a superiority among inbred lines ( $p<0.05$ ) on canopy morphology except number of branches resembling the impact of low moisture stress on individual inbred line. Photosynthesis after observing first set of flowers had in impact by interaction between inbred line and irrigation regime ( $p<0.05$ ). Inbred lines MICHPL52 and MICHPL12 showed a greater photosynthetic capacity at stress despite being the lowest without stress, while in other inbred lines, photosynthesis was drastically reduced at stress. Principle component analysis screened four possible candidate lines i.e. MICHPL52, MICHPL12, MICHPL28 and MICHPL13. However, crop is still yielding, hence yield data may help to confirm possibilities of precise screening of selected inbred lines.

**Keywords:** Agro-morphological traits, Chilli, Inbred lines, Low moisture stress, Photosynthesis