SCREENING *HEVEA* CLONES FOR TOLERANCE TO DROUGHT IN THE INITIAL FIELD EXPOSURE

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Drought stress is one of the major factors that limit extension of rubber cultivation to the North Konkan region of Maharashtra and parts of eastern states of India such as Odisha. Seventeen pipeline clones produced through hand pollination and open pollination along with three check clones were planted in a clone evaluation trial at Dapchari in Maharashtra during August 2018. Dapchari experiences severe drought conditions during February- May every year. During May 2019, when the plants were experiencing severe soil moisture deficit, high temperature and high solar radiation, the extent of leaf damage in terms of leaf yellowing and drying was assessed as an indirect measure of their intrinsic tolerance to the environmental stress. Check clones RRII 430 and RRIM 600 which are already known as relatively drought tolerant clones showed 12.9 per cent and 13.4 per cent leaf drying, respectively. Check clone RRII 105 which is generally regarded as a drought susceptible clone showed more (18.5%) leaf drying. Pipeline clones such as P 114 (3.7%), P 192 (5.7%), P 200 (6.8%), P 225 (8.4%) and P 68 (8.9%) had considerably lesser leaf drying than RRII 430. Clones P 205 (17.8%), P 27 (18.3%), P 207 (21.4%) and P 196 (21.7%) showed the highest leaf drying among all the clones tested.The two top ranking clones in terms of less leaf drying *viz.* P 114 and P 192 also maintained relatively more number of whorls and leaves, and these clones had more height indicating their better initial growth in the field in a drought prone region.

Key words: Drought tolerance, *Hevea* clones, Large scale evaluation, Weather parameters

Developing tolerance to drought is an important breeding objective in *Hevea brasiliensis* which is necessitated by the need to expand Natural Rubber cultivation to drought prone regions in the non-traditional regions such as Odisha,and meet challenges posed by global climate change in traditional areas (Kerala). Variability in intrinsic drought tolerance traits can be exploited for genetic improvement of crops. Under Indian conditions drought and heat stress occur concomitantly with high light stress which aggravate the harmful effects (Jacob *et al.*, 2003; Jacob and Satheesh, 2010). Drought stress caused by water scarcity, and heat stress due to elevated temperature levels are the most critical limiting factors to plant growth and productivity. Plants experience drought condition when availability of water in the root zone is less and the water loss through transpiration is high (Anjum*et al.*, 2011). In *Hevea* breeding programs, clones developed through hybridizations and ortet selections are evaluated in clonal nurseries,

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