

## **Photosynthesis and some related processes of young tea (*Camellia sinensis* L.) as affected by short-term water deficit**

The ability to withstand drought is of prime importance in selecting and recommending tea clones. Short-term effects of water deficit on photosynthesis and some related processes of one-year-old tea were evaluated using tea clones B 275 (drought resistant clone), K 150 (drought susceptible clone) and two clones unknown for the response, (KEN 15/& and TRI 3058). They were subjected to well watering (maintained near field capacity) and moisture stress (no watering) treatments.

Photosynthesis of K 150 and TRI 3058 was more sensitive to water deficit. Stomatal conductance decreased with decreasing leaf water potential (LWP), resulting in decrease of intercellular CO<sub>2</sub> concentration, and rate of photosynthesis, in all the clones. There was no significant difference between the clones in photochemical (Q<sub>P</sub>) and non-photochemical quenching (Q<sub>NP</sub>). In all clones, Q<sub>P</sub> did not change with decrease in LWP, but Q<sub>NP</sub> decreased. Mid-day photosystem II activity decreased gradually with decrease in LWP in B 275 and KEN 15/&, but not in K 150 and TRI 3058, showing osmotic adjustment only in the two former clones. The proline content increased with the increase in water deficit, irrespective of the clone. Amongst the unknown clones tested, drought resistant and susceptible properties were evident in KEN 15/7 and TRI 3058 respectively. Therefore, photosynthesis and related processes can be used as a tool in screening tea clones for drought tolerance.