

OSMOTIC REGULATION IN MANGO (*MANGIFERA INDICA* L.) CULTIVARS AT DIFFERENT PHENOLOGICAL STAGES OF FLOWERING AND FRUITING

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ABSTRACT

Water stress in mango has been presumed to provide the stimulus for flowering, and is known as a successful signal for floral induction. Relative water content (RWC) and water potential (Ψ_w) are the most appropriate measure of plant water status in terms of the physiological consequence of cellular water deficit. The Ψ_w and RWC were evaluated in the leaves of 'Amrapali' (regular bearer) and 'Langra' (biennial bearer) cultivars under normal soil moisture condition (50-68%) of orchard (upto 60 cm depth) in order to know their osmotic adjustment capacity at critical stage of flowering and fruit growth. In the field condition Ψ_w and RWC in Amrapali was -6.0 MPa & 78.0%, -7.29 MPa & 74.9 % and -8.7 MPa & 61.85% at pre flower bud differentiation, flower bud differentiation and panicle elongation stage respectively whereas these values were -5.11 MPa & 75.41%, -7.32 MPa & 70.20% and -7.94 MPa & 55.23% in the corresponding stages of Langra cultivar. The osmotic adjustment calculated on the basis of difference of Ψ_{π} morning (7:00-7:30 am) and Ψ_{π} hour (11:00-11:30 am) indicates that the Amrapali had higher osmotic adjustment capacity (11-31%) than Langra (10-30%) during critical stage of flowering. Relation of fruit drop and osmotic adjustment was also worked and Langra has more fruit drop (35-40%) counted at marble stage of fruit growth than the Amrapali (10-15%). These studies showed that Amrapali has more efficient mechanism for avoiding water loss than Langra cultivar.

KEYWORDS: Mango (*Mangifera indica* L.), Amrapali, Langra, Flower Bud Differentiation, Fruit Development, Osmotic Regulation