

# **MULTIPLE STRESS-INDUCED PHYSIOLOGICAL SYNDROME AFFECTING NATURAL RUBBER PRODUCTION INVOLVING ETHYLENE RESPONSE FACTORS IN *HEVEA BRASILIENSIS***

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*Hevea brasiliensis* is the main source of natural rubber accounting for 42% of the worldwide rubber consumption. Latex-containing rubber particles is produced in laticifers, a specialized tissue differentiated in phloem. Latex is collected by tapping the soft bark of rubber trees. Ethephon, an ethylene releaser, is applied on bark to stimulate latex flow and regeneration between two tappings. Environmental and harvesting stresses are known to induce an oxidative stress triggering Tapping Panel Dryness (TPD). TPD is a physiological syndrome affecting latex production by promoting the agglutination of rubber particles.

RNA sequencing analysis revealed an involvement of hormone signalling pathways especially ethylene and jasmonate. Given the influence of ethephon, transcriptional and post-transcriptional regulation of ethylene response factors (ERF) were characterized in response to abiotic and harvesting stresses. Some members of ERF group IX are known to be essential integrators of ethylene and jasmonate signalling pathways. The functional analysis of HbERF-IXc5 was carried out. Its overexpression in transgenic rubber trees revealed its involvement in laticifer differentiation, a biological process known to be induced by wounding and jasmonate.