

## SCREENING AND EXPRESSION PROFILING OF *HAL3A*, DEHYDRIN, ABC TRANSPORTER AND *NHX1* IN TEN GENOTYPES OF MULBERRY, *MORUS SP.*, FOR ABIOTIC STRESS TOLERANCE

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Drought and salinity stress are two major abiotic factors that limit plant growth and productivity. By using an efficient *in vitro* screening method, ten economically important mulberry genotypes were screened for tolerance against drought and salinity stress. Leaf discs from field-grown plants were subjected to three hours of stimulated drought and salinity stress by aerial drying and 200 mM sodium chloride treatment, respectively to study their physiological characteristics as indicators of tolerance index in mulberry. Important parameters such as relative water content (RWC), proline accumulation, nitrate reductase activity, cell membrane stability (CMS) and photosynthetic yield were estimated to evaluate the tolerance of genotypes against drought and salt stress. Expression analysis of stress responsive genes *i.e.*, *Hal3A*, *NHX1*, *dehydrin* and *ABC transporter* was undertaken to quantify the levels of expression under simulated drought and salt stress. S13 and AR-12 varieties exhibited drought resistance whereas, S34 and K2 appeared to be salt tolerant genotypes. Distinguishing salt and drought affected lands, thereby increasing the availability of leaf material for sericulture industry.

**Key words:** Cell membrane stability, drought, genotype, mulberry, proline, salinity.