

Superoxide Dismutase Gene Might Play a Major Role in Tapping Panel Dryness of Rubber (*Hevea brasiliensis* Muell. Arg.).

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Among the rubber producing plant species, *Hevea brasiliensis* Muell. Arg., commonly known as rubber tree, is almost the sole source of natural rubber. Currently, the rubber industry of Sri Lanka contributes about 1.0 % of the GDP being one of the major income sources of the agriculture sector. Over the past decades, the rubber yield has been significantly increased due to the introduction of high yielding clones. However, the latex production is seriously affected by tapping panel dryness (TPD), a physiological disorder, which ultimately results in decline or complete cessation of latex production and causes 15 % to 20 % yield loss worldwide annually. In Sri Lanka, yield loss due to TPD is increasing at an alarming rate. It is hypothesized that TPD is caused by tapping induced oxidative stress resulted from over exploitation. Under oxidative stress, plants generally increase the production of free radical scavenging or antioxidant enzymes such as, superoxide dismutase (SOD), catalase (CAT) and peroxidase (APX). At present, the cause of TPD is not clear. Therefore, this study was started with the objectives of studying the role of antioxidant genes on TPD. The expression differences of antioxidant genes in both TPD affected and healthy trees of RRISL 2001 rubber clone were analyzed using semi quantitative RT-PCR. Gene specific primers designed to span exon junctions were used for PCR amplifications and the amplified products were visualized on ethidium bromide stained agarose gels. The band intensities were determined by visually. The results showed that the expression of the rubber SOD gene is highly down-regulated in TPD affected trees compared to that of healthy trees. Whereas, the CAT gene is slightly up-regulated in TPD affected trees leading to conclude that rubber SOD gene might play an important role in TPD. Moreover, our results support to the hypothesis that TPD is caused by inefficient scavenging of reactive oxygen species due to defects in antioxidant system of some rubber trees.

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