



Genetic variability of drought tolerance in *Hevea brasiliensis*: the role of vulnerability to xylem cavitation

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**GENETIC VARIABILITY OF DROUGHT TOLERANCE IN *HEVEA BRASILIENSIS*:
THE ROLE OF VULNERABILITY TO XYLEM CAVITATION**

Rubber tree (*Hevea brasiliensis*) is an important agronomic tree in Thailand; and it originally grows in Southern Thailand where rainfall is abundant. However, the plantation area is characterized for 80 % by the use of only one clone and it is expanded northward into marginal rainfall area of Northeastern and Northern Thailand. This expansion combines with drought situation bring forth the importance to select genotype for drought resistance ability. On one hand, tree, can close their stomata to reduce water loss, and on the other hand it can develop an ability to tolerate xylem cavitation. These 2 strategies are the main hydraulic strategies to resist drought stress. In this study, we compared the response of hydraulic traits of 10 rubber clones (BPM 24, PB 217, PB 235, PB 260, PB 5/51, RRII 105, RRII 118, RRIM 600, RRIT 251 and RRIT 408) submitted to 2 soil water regimes; well-watered and completely stop watering for 11 weeks. Then, their recovery after drought stress was also compared. The clones showed differences on both their stomatal regulation and their vulnerability to cavitation with 50% loss of conductivity (P50) values ranking from 1.19 to -1.69 MPa. PB 217, PB 260 and RRIT 408 showed the highest potential to resist drought stress since they were not only close their stomata early to save water but also tolerant to xylem cavitation. BPM 24 and RRIM 600 appeared to be the least resistant to drought stress because they kept their stomata opened longer when facing water deficit and they were also sensitive to cavitation. On the last 3 weeks of drought stress, stressed trees shed most of their leaves but after they were re-watered they rapidly recovered by produced new leaves and started to grow new shoots.