The influence of tree height and diameter at breast height on the stemflow generation: a preliminary study

ABSTRACT

The rainfall partitioning of gross precipitation into stemflow of canopy interception was studied and measured in a tropical forest situated in Danum Valley Field Center, Lahad Datu. Specifically, this study demonstrates the quantification of the factors affecting the stemflow production, the influence of smaller size trees on stemflow in terms of diameter at breast height (DBH) and tree height, and the significance of gross precipitation on stemflow production. A relatively low value of 0.27% (0.32 mm) as stemflow was collected as to propose shorter research duration would cause higher uncertainties. Both components of the interception were highly dependent on the amount of precipitation, thus, causing rainfall interception to also be dependent on it. Nonetheless, smaller DBH classes (<20 mm) were found to be equally influential in the production of stemflow volume where its R2 shows a high correlation which was within the range of 0.69 – 0.80. Even so, a larger study area which encloses a wide range of tree height and DBH, and a longer research period is required to reduce uncertainties and enhance the findings.