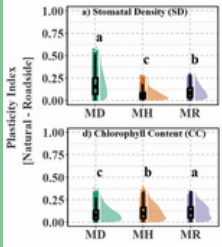
# PUBLICATION

## On the pre-adaptation of *Mitragyna* species to urban environments of Thailand




รองศาสตราจารย์ ดร.นิสา เหล็กสูงเนิน
Assoc. Prof. Dr. Nisa Leksungnoen

ผู้ช่วยศาสตราจารย์ ดร.สุวิมล อุทัยรัศมี
Asst. Prof. Dr. Suwimon Uthairatsamee

ผู้ช่วยศาสตราจารย์ ดร.พฤทธิ์ ราชรักษ์
Asst. Prof. Dr. Phruet Racharak


### Abstract

As trees growing in urban environments are subjected to various stresses, it is important to select species that are naturally tolerant to such stresses. We compared the adaptability of three native *Mitragyna* species (*M. diversifolia*, *M. hirsuta*, and *M. rotundifolia*) from various parts of Thailand, growing in a wide range of environments and stresses. Various leaf morphological and physiolo gical traits of trees growing along the roadside with their counterparts in the natural habitat were compared. The adaptability potential of the species, quantified through the plasticity index (PI), indicated an overall low plasticity for all traits. We attribute the low observed plasticity to the three species having a wide distribution range spanning diverse abiotic conditions. This includes low resource environments, and as such, they are pre-adapted to conditions similar to their native habitat. As the *Mitragyna* species already grow in diverse abiotic conditions, their ecological performance under stressful conditions (roadside) is not vastly different, potentially making them viable for planting in urban environments. We conclude that such species with similar trait level of PIs in both native and urban environments can successfully establish and thrive in urban green spaces under highly stressful urban conditions and provide sustained valuable ecosystem services.



READ MORE

**Leksungnoen, N.**, T. Andriyas, C. Ngernsaengsaruay, **S. Uthairatsamee** and **P. Racharak**. 2024. On the pre-adaptation of *Mitragyna* species to urban environments of Thailand. Ecoscience: 1–12. Doi: 10.1080/11956860.2024.2354582.

ForestBiology Forestry
0-2579-0176