RESEARCH ON REPRODUCTIVE BIOLOGY AND HYBRIDIZING POSIBILITY BETWEEN TETRAPLOID *Acacia mangium* (AM-4x) AND DIPLOID *Acacia mangium* (AM-2x) & *Acacia auriculiformis* (AA-2x): IMPLICATIONS FOR TRIPLOID BREEDING

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Summary

Development of sterile triploid (3x) planting stock for tropical *Acacia* species has been carried out in Vietnam since 2001. Floral phenology and morphology of *Acacia mangium* Willd. (AM) and *A. auriculiformis* A. Cunn. ex Benth (AA) in comparison between diploid (2x) and tetraploid (4x) was investigated. The result showed that pollination capacity between these two species and ploidy levels is likely happened as flowering lasted for several months with a monthflowering overlap although a slightly later peak flowering period for *A. auriculiformis* (December - January), than for *A. mangium* (November - December). For morphology, flower spikes of AM-4x were shorter and had fewer flowers per spike than those of AM-2x, but were longer and had more flowers than AA-2x. Percentages of male flowers were less than 23% for all three species/ploidy combinations. In addition, AM-4x polyad diameter (42 µm) was the greatest, compared with 33 & 37 µm of AM-2x & AA-2x, but still smaller than the smallest stigma diameter of AM-2x (48 µm), subsequently AA-2x (51 µm) and AM-4x (62 µm). These ensured that at least one polyad could be accommodated on stigma regardless of species and ploidy levels. Following controlled pollinations, percentage of pod set (approximately 1%) and filled seed yield (a range of 5.9 – 23.2%) in inter-ploidy crosses of both intra- and inter-species was significant lower than these percentages of diploid crosses with 7 – 9% and 81 – 97%, respectively. Therefore, it remains strong barriers to production of viable 3x seeds from inter-ploidy cross-types.

**Key words:** *Acacia mangium*, *A. auriculiformis*, triploids, hybridization, phenology, flower morphology, pod and seed production.