



A first perspective on evolution and diversification of Australasian *Teucrium* (Lamiaceae) and improved insight to selecting contemporary genomic techniques.

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Teucrium L. (Lamiaceae) is a cosmopolitan genus with a Mediterranean centre of diversity. We tested recently-made generic synonymies and species concepts using phylogenomic analysis of nuclear genes sequenced via targeted enrichment (Angiosperms-353 baits) for replicates of all (27) Australasian species and phrase names. We show that the diversity of *Teucrium* across Australasia constitutes two distantly related clades. The most speciose clade is a component of the 'core *Teucrium* clade' and has diversified across Australia and into New Zealand whereas the second consists of three eastern Australian species belonging to the 'Polium clade'. The former clade consists of basally-derived branches of western Australian species, hinting at a southwestern origin. It also exhibits two independent radiations into the Australian arid inland, one coinciding with a distinctive shift in pollination strategy and seed dispersal. Overall, analysis of target-bait capture data produced a tree with high support for most species clades and was able to unequivocally place most 'unknowns'. We identify advantages and limitations of using the technique for better-equipping future systematic studies through examining its ability to resolve *Teucrium* species complexes (e.g. *T. corymbosum*) and through comparative assessment with SNP-based genomic scans.

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