

***In vitro* Cultures of Cyclopia Plants (Honeybush) as a Source of Bioactive Xanthonenes and Flavanones**

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In vitro shoot and callus cultures of the endemic South-African shrubs: *Cyclopia intermedia* E. Mey., *Cyclopia subternata* Vogel, and *Cyclopia genistoides* (L.) Vent. (Fabaceae) were established and examined for the presence of polyphenolic compounds. The xanthonenes mangiferin and isomangiferin, as well as the flavanones hesperidin and eriocitrin were identified by LC-ESI-MS and LC-DAD, and analyzed quantitatively by HPLC. The respective intact plants were analyzed for comparison. From all *in vitro* cultures, the highest levels of mangiferin (1.55%) and isomangiferin (0.56%) were recorded in *C. subternata* microshoots, compared to 1.31% and 0.49% found in the intact plant. Callus cultures of all species synthesized only trace amounts of mangiferin and isomangiferin. Hesperidin and eriocitrin contents were significantly lower in all *in vitro* cultures, in comparison to the respective intact plants. Among the obtained *in vitro* biomasses, the highest hesperidin content was recorded in *C. intermedia* (0.9%) and *C. subternata* (0.87%) microshoots, whereas *C. subternata* callus was characterized by the best growth parameters and highest hesperidin content (0.69%) from all examined *Cyclopia* calli.

Key words: Honeybush, Plant *in vitro* Culture, LC-ESI-MS Analysis