

## OP7. An overview of the biological activities and essential-oil composition of three South African *Salvia* species

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Essential oils produced by aromatic plants have been used to treat various ailments such as malaria and microbial infections for many years. In South Africa, there are 26 indigenous *Salvia* species and most of them have been reported for use in the treatment of malaria, tumors, microbial infections. Among those of ethnomedicinal value are *S. repens*, *S. stenophylla* and *S. runcinata* which form a species complex. The current study aimed to profile the essential-oil composition and investigate the bioactivities related to the traditional uses. The essential oil of the three species (*S. repens*, *S. stenophylla* and *S. runcinata*) was isolated by hydrodistillation and the antimalarial, anti-inflammatory, antimicrobial activities and the toxicity profiles were evaluated using the [<sup>3</sup>H]hypoxanthine incorporation assay, 5-lipoxygenase assay, minimum inhibitory concentration assay and the MTT colorimetric method, respectively. The essential-oil composition was analyzed using the GC-MS and GC-FID methods. The oil of *S. repens* was dominated by 1,8-cineole (12.8%), *p*-cymene (9.5%) and limonene (9.4%), while  $\alpha$ -bisabolol (65.0%) and  $\beta$ -caryophyllene (10.5%) were the major constituents of *S. runcinata*.  $\alpha$ -Bisabolol (26.1%) and  $\delta$ -3-carene (22.6%) were the dominant constituents of *S. stenophylla*. The anti-inflammatory activity of the three oils (IC<sub>50</sub> value) ranged from 22.8 to 49  $\mu$ g/mL with *S. runcinata* exhibiting the best activity. The three oils also inhibited the growth of *Plasmodium falciparum* FCR-3 strain with IC<sub>50</sub> values ranging from 1.2-4.1  $\mu$ g/mL with the oil of *S. runcinata* showing the best antimalarial activity. The essential oils showed poor antimicrobial activity (MIC value > 32 mg/mL) and were also toxic to normal kidney epithelial cells (IC<sub>50</sub> value < 6.6  $\mu$ g/mL). The essential oils displayed some degree of activity, however, the toxicity exhibited against kidney cells indicated that the oils should be used with caution.

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