

## 2<sup>nd</sup> International Conference and Exhibition on Pharmacognosy, Phytochemistry & Natural Products

August 25-27, 2014 DoubleTree by Hilton Beijing, China

### A comparative study of the phytochemistry and anti-oxidant activity of the methanolic extracts of *Stachys natalensis* (Hochst.) and *Pycnostachys urticifolia* (Hook.) (Lamiaceae)

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Many members of the genera *Stachys* and *Pycnostachys* have been used as ornamental plants, or as edible foods and in traditional medicine. *Stachys natalensis* Hochst., is a perennial, straggling shrub with fragrant leaves that are densely covered with hairs. *Pycnostachys urticifolia* Hook., commonly known as “Hedgehog sage” possesses strongly scented leaves and conspicuous conical-shaped blue flowers. The leaves and roots of *P. urticifolia* are traditionally used to treat sore throats and mouth infections. The aim of this study was to determine and compare the phytochemistry and anti-oxidant activity of the *S. natalensis* and *P. urticifolia*. Preliminary phytochemical tests performed on the leaf methanolic extracts of both species, revealed the presence of phenolics, alkaloids, flavonoids and terpenoids amongst other bioactive compounds. *Stachys natalensis* and *P. urticifolia* leaf extracts also contained a considerable level of total phenolics ( $3.43 \pm 0.01$  mg GAE/g dry material and  $3.58 \pm 0.088$  mg GAE/g dry material respectively) measured by the Folin-ciocalteu method and total flavonoids ( $3.04 \pm 0.01$  mg QE/g dry material and  $1.99 \pm 0.007$  mg QUE/g dry material respectively) measured by the aluminium chloride assay. The free radical scavenging ability of the methanolic extracts of *S. natalensis* and *P. urticifolia* quantified by the DPPH assay demonstrated significant anti-oxidant activity ( $EC_{50} = 49.49 \pm 3.87$  ug/ml and  $EC_{50} = 46.22 \pm 4.44$  ug/ml respectively) compared to the standard anti-oxidant ascorbic acid ( $EC_{50} = 12.03$  ug/ml). The perceived therapeutic benefits of these plants are likely to lie within their suite of secondary metabolites and indicate the potential for their use as natural anti-oxidants.

#### Biography

Yougasphree Naidoo is Senior Lecturer and Academic Leader (Cellular Biology) in the School of Life Sciences, University of KwaZulu-Natal, Durban, South Africa. She is a cell biologist and microscopist by training, with a strong interest in plant secretory structures, particularly of those potential medicinal plants indigenous to southern Africa. Through her research, she has discovered several novel microscopic trichomes in the leaves of many southern African plants and is one of few South African experts in this field with an active publishing record.

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