



In vitro anti-radical activities of extracts of *Solanum nigrum* (L.) from South Africa

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ABSTRACT

Objective: *Solanum nigrum* (black nightshade) is a wild vegetable with many ethnomedicinal uses. This study evaluated the quantitative phytochemical components, *in vitro* antioxidant and antibacterial activities of extracts of *S. nigrum* with the aim of providing more information on its therapeutic potential in the management of metabolic and infectious diseases.

Methodology and Results: The phytochemicals components, antioxidant and antibacterial activities of the extracts were evaluated using standard laboratory techniques. The phenols content was significantly higher in the ethanol extract of the berry (228.40 ± 3.09 mg/g) than the water extract (132.2 ± 1.23 mg/g) and the percentage saponins content was generally higher in the water extracts than the ethanol extracts of the plant. At 0.5 mg/ml, the water extracts exhibited higher ferrous reducing action and DPPH radicals scavenging activity than the ethanol extracts. The antioxidant activity of the ethanol extracts against nitric oxide radicals was higher than that of the water extracts. The ethanol extracts exhibited 100% antibacterial activity.

Conclusion and Application of results: *Solanum nigrum* showed significant antioxidant and antibacterial activities. The polyphenol components of the plant could be responsible for the antioxidant and antibacterial activities observed in this study. The isolation and characterization of active compounds from various parts of *S. nigrum* could lead to the discovery of novel compounds that could present the plant as a valuable candidate in the management of diseases. The plant could be important in the management of bacterial related infectious diseases. Powder and tincture prepared from the leaves could be used as antibacterial remedy. However, antifungal screening of the plant will further confirm its anti-infective status. Based on its antioxidant activity, the leaves of *S. nigrum* could be a good source of natural antioxidant with considerable therapeutic effect in the management of metabolic diseases such as diabetes, obesity, hyperlipidemia, atherosclerosis, hypertension and cancer. This study forms basis for future research activities on extracts and active compounds of *S. nigrum* for bioactivity in chronic diseases.

Keywords: *Solanum nigrum*, phytochemicals, antioxidant activity, antibacterial activity, natural antioxidant.