Comparison of Antimicrobial, Antioxidant and Total Phenolic Content of Leaves of *Solanum torvum, Solanum incanum, Solanum violaceum* Grown in Two Different Areas of Sri Lanka

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The present study was carried out to compare the antioxidant activity, antibacterial activity, and total phenolic content of the leaf extracts of *Solanum torvum, Solanum incanum,* and *Solanum violaceum* and to identify the effect of geographical area on the selected chemical properties to utilize them in medicinal purposes effectively. Three mature leaf samples for each variety were taken from three different locations of Badulla and Puttalam district and Methanolic extracts of shade-dried leaf powder were prepared. The antioxidant activity was determined using DPPH spectrometric assay. The antibacterial activity was investigated using agar disk diffusion assay against *Escherichia coli* and *Staphylococcus aureus* with Gentamicin as positive control and Methanol as the negative control. Folin Ceocalteu method was used to determine the total phenolic content of selected plants. *S. torvum* growing in Badulla district has shown the highest total phenolic content (163.4 GAE/g) and highest antioxidant activity (IC 50 value, 0.72 ppm). All the extracts tested were not active against *E. coli.* However, extracts of *S. torvum* in Badulla district were active against *S. aureas* (Average Inhibition Diameter, 7.33 mm; Positive Control, 24 mm; Negative control, 0 mm). According to statistical analysis, there is no significant difference in antioxidant activity and total phenolic content of the studied varieties and no significant effect from geological area to any of the studied properties (Two-way ANOVA, $p > 0.05$). Since *S. torvum* of Badulla district has shown comparatively higher antioxidant activity, antibacterial activity, and total phenolic content, it could be more effective in the production of various medical commodities. However, further studies should be done for *S. torvum* growing in other areas as well.

Keywords: Solanum sp., Antioxidant activity, Anti-bacterial activity, Total phenolic content, Geographical area