

Phytochemicals, Antioxidant And Antiproliferative Properties Of Five Moss Species From Sabah, Malaysia

Abstrak

Objective: This study was conducted to investigate the phytochemical contents, the antioxidant and antiproliferative properties of 80% methanol, ethanol and aqueous extracts of *Sphagnum cuspidatum* subsp. *subrecurvum*, *Sphagnum cuspidatum*, *Sphagnum junghuhnianum*, *Pogonatum cirratum* subsp. *fuscatum* and *Pogonatum cirratum* subsp. *macrophyllum*. Methods: The total phenolic and total flavonoid contents were analysed using Folin-Ciocalteu and aluminium chloride colorimetric methods. The antioxidant properties were evaluated by three different assays, namely, ferric reducing/antioxidant power (FRAP), ABTS and DPPH free radical scavenging assays. MTT assay was used to study the antiproliferative properties against selected cancer cell lines. Results: The results showed that the aqueous and ethanol extracts of *S. cuspidatum* subsp. *Subrecurvum* has the highest total phenolic and total flavonoid content with the values of 5.42 ± 1.95 mg gallic acid equivalent per g of dry sample and 2.12 ± 0.02 mg catechin equivalent per g of dry sample, respectively. The 80% methanol extracts of *S. junghuhnianum* has the lowest total phenolic and total flavonoid content with the values of 0.80 ± 0.12 mg gallic acid equivalent per g of dry sample and 0.03 ± 0.02 mg catechin equivalent per g of dry sample, respectively. None of the extracts displayed IC₅₀ value (concentration that inhibits 50% of free radical) at concentration tested. The 80% methanol extracts of *P. cirratum* subsp. *Fuscatum* induced antiproliferative activity against CaOV3 Conclusion: Results obtained indicated that the selected mosses contained considerable amount of phenolics and flavonoids which contribute to antioxidant properties. *P. cirratum* subsp. *Fuscatum* and *S. cuspidatum* have the potential to be used in pharmaceutical industry due to the ability of these two species to induce antiproliferative activity against CaOV (ovarian carcinoma) cell line whereas *S. cuspidatum* induced antiproliferative activity against

HepG2 (liver cancer) cell line. None of the extracts induce antiproliferative activity against MDA-MB-231 (non-hormone dependent breast cancer) cell line.