

Antioxidant and anti-proliferative activities of Sabah Ruellia tuberosa

Abstract

The study was carried out to evaluate the total phenolic constituents, antioxidant and anti-proliferative activities of Sabah *Ruellia tuberosa*. The total phenolic and flavonoid contents of the plant extracts were determined by using Folin-Ciocalteu and aluminium chloride colorimetric assays, respectively. The antioxidant activity of the plant extracts was evaluated using DPPH free radical scavenging assay while the anti-proliferative activity was evaluated using MTT assay against the human breast cancer (MCF-7) and cervical cancer (HeLa) cell lines. The methanol leaf extract was found to possess the highest total phenolic content (82.67 ± 2.09 mg GAE/g) while the ethyl acetate leaf extract was found to possess the highest total flavonoid content (152.77 ± 4.68 mg Cat/g). The ethyl acetate leaf possessed the highest radical scavenging activity, with IC₅₀ of 720 μ g/ml. Meanwhile, the methanol stem extract showed the highest anti-proliferative activity against MCF-7 cancer cells, with IC₅₀ of 22 μ g/ml but none of the extracts exhibited strong anti-proliferative activity against the HeLa cancer cell lines. Significant correlation was found between the total phenolic/flavonoid contents with the total antioxidant activity while weak correlation was found between the total phenolic/flavonoid contents with the inhibition of MCF-7 cell proliferation. Our findings indicate that Sabah *Ruellia tuberosa* could be a potential source for natural antioxidant as well as chemo-preventive agent against breast cancer in future. Thus, further isolation and characterization of the respective bioactive compounds from the plants are necessary