

In vitro Antioxidant and Antisickling Effects of *Aerva javanica*, and *Ficus palmata* Extracts on Sickle Cell Anemia

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Abstract : Sickle Cell Anemia (SCA) is one type of blood diseases related to autosomal disorder. The sickle shaped red blood cells are the main cause of many problems in the blood vessels and capillaries. *Aerva Javanica* (J) and *Ficus Palmata* (P) are medicinal plants that have many popular uses and have been proved their efficacy. The aim of this study was to assess the antioxidants activity and the antisickling effect of J and P extractions. The period of this study, air-dried leaves of J, and P plants were ground and the active components were extracted by maceration in water (W) and methanol (M) as solvents. The antioxidants activity of JW, PW, JM, and PM were assessed by way of the radical scavenging method using 2,2-diphenyl-1-picrylhydrazyl (DPPH). To determine the antisickling effect of J and P extracts. 20 samples were collected from sickle cell anemia patients. Different concentrations of J and P extracts (200 and 110 µg/mL) were added on the sample and incubated. A drop of each sample was examined with light microscope. Normal and sickled RBCs were calculated and expressed as the percent of sickling. The stabilization effect of the extracts was measured by the osmotic fragility test for erythrocytes. The finding suggests as estimated by DPPH method, all the extracts showed an antioxidant activity with a significant inhibition of the DPPH radicals. PM has the least IC50% with 71.49 µg/ml while JM was the most with 408.49 µg/ml. Sickle cells treated with extracts at different concentrations significantly reduced the percentage of sickling compering to control samples. However, JM 200 µg/mL give the highest anti-sickling affect with 17.4% of sickling compared to control 67.5 of sickling while PM at 200 µg/mL showed the highest membrane cell stability. In a conclusion, the results showed that J and P extracts have antisickling effects. Therefore, the *Aerva javanica* and *Ficus palmata* may have a role in SCA management and a good impact on the patient's lives.

Keywords : *Aerva javanica*, antioxidant, antisickling, *Ficus palmata*, sickle cell anemia

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