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INVESTIGATION OF ANTIOXIDANT ACTIVITY OF *Hibiscus sabdariffa* EXTRACT

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ABSTRACT

Oxidative stress has been known as the main cause of the development and progression of several diseases including important human diseases like cardiovascular disease, type 2 diabetes, digestive diseases, and some cancers. Flavonoids are the most abundant antioxidant in plants and also have an excellent ability to capture oxidative free radicals. *Hibiscus sabdariffa* has been reported various biological activities including *H. sabdariffa* is a rich source of phenolic and flavonoids. These phytochemicals are responsible for several bioactivities such as antimicrobial activity. *H. sabdariffa* was used in this study, aiming for determining the antioxidant activity of polyphenols, as oxidative stress plays a vital role in the development of cancer. The total flavonoids content was determined using the aluminium chloride colourimetric method and expressed as quercetin equivalents (QE)/g and the antioxidant capacity of the flavonoids using the DPPH and ABTS radical scavenging capacity assays. The IC50 values of *H. sabdariffa* extract were 167.14 µg/mL ± 0.843 and 77.59 µg/mL ± 0.798, respectively. In the DPPH assay, vitamin C was used as a positive control, whereas Trolox was used as a positive control in the ABTS assay. To summarise, *H. sabdariffa* extract contains a high concentration of total flavonoids and exhibits potent antioxidant activity. However, additional antioxidant activity assays such as SOD, ROS, and RNS scavenging assays and in vitro antioxidant experiments should be carried out to investigate the molecular mechanism of the compound.

Keywords: ABTS assay, Antioxidant activity, DPPH assays, total flavonoid content, *Hibiscus sabdariffa*