

## Effects of Drying Temperatures on the Qualitative and Quantitative Phytochemicals of Aqueous Extracts If the Calyces of Hibiscus Sabdariffa

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**Abstract :** Hibiscus sabdariffa (Hs) is known for its delicacy and also for medicinal properties. The flower calyces are usually sun- or oven-dried after harvesting. There are unverified claims that calyces dried at lower temperatures have better medicinal potentials than those dried at higher temperatures. The present work, therefore, aimed to study the effects of drying temperatures on the photochemical composition and antioxidant potential of aqueous extracts of the calyces of Hs. The calyces were dried at different temperatures (freeze-drying at -580C, drying at 300C, 400C, and 500 C.) respectively to constant weight. Samples (25 g) of dried calyces from each drying temperatures were weighed and placed in clean conical flasks and extracted; each was used for the analysis. Validated analytical assays were used for the determination of the different Phytochemicals. From the results obtained, it was observed that drying at 30°C resulted in the highest retention of total phenols, total flavonoids, tannins, alkaloids and saponins. Using the Inhibition Concentration values (IC<sub>50</sub>), some antioxidant parameters were found to follow the same trend as the earlier mentioned phytochemicals. Drying at 30°C resulted in the highest retention of DPPH Radical Scavenging Activity, Ferric Reducing Antioxidant Potential (FRAP), Nitrite radical scavenging Activity, 2, 2-azinobis-3-ethylbenzotiazoline-6-sulfonic acid (ABTS) radical scavenging activity There were, however, significant reductions in vitamin C and oxalate contents as the drying temperature increased ( $P < 0.05$ ). From the results, it recommended that the calyces of Hibiscus sabdariffa be dried at 30°C in order to optimally elicit its medicinal potentials.

**Keywords :** antioxidant, drying temperature, hibiscus sabdariffa, phytochemicals, quantitative

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