

Quantitative analysis of phytochemical extracts of *Hydnora africana* and *Hydnora abyssinica* species in Narok County, Kenya

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Abstract

Hydnora spp. are a group of parasitic herbs that thrive well in arid tropical regions such as in the Maasai terrains of Narok County, Kenya. These herbs have been alleged to cure numerous killer diseases such as cancer and HIV/AIDS. However, not much is known of ethno-medicinal properties of most of the species. The present study aimed at analyzing the quantity of phytochemicals as well as other confounding ethno-medicinal variables of different *Hydnora spp.* found in Narok County, Kenya in an effort to determine their viability in the synthesis of new drugs. *Hydnora africana* samples were collected from loita forest and Ewaso-nyiro while *H. abyssinica* were collected from Maasai Mara national reserve. The flowers and rhizomes extract of these samples were extracted by maceration and hot water infusion method (as is natively done). The extracts were then used to assess their qualitative and quantitative phytochemical analysis (gravimetry), composition (X-Ray fluorescence), functional groups (Fourier transform infrared), antimicrobial activity and metabolites analysis. Antimicrobial analysis against *Escherichia coli* as the bacteria pathogen and *Candida albicans* as the fungi and gave strong inhibition zone diameters ranged from 12.40.8 to 182.3mm for bacteria and 11.31.1 to 13.31.6mm for fungi indicating high ability of the extracts in suppressing these pathogens. From the analysis both *Hydnora spp.* showed the presence of Mg, Al, Si, P, S, P, Ca, Fe, Cl and Br ions. The main functional groups demonstrated in the two species were N-H, O-H, C-O, C-O-, C=C, C-H, benzene ring. The metabolite tests for both species averaged; carbohydrates (0.387 ± 1.16), iodine value (4.06 ± 0.11), fatty acids value (2.222 ± 0.37), acid value (4.437 ± 1.11) and total ash value (4.21 ± 1.05). Both species also tested positive for tyrosine and histidine while *Hydnora africana* showed positive results for arginine. On the other hand, *Hydnora abyssinica* showed positive results for cystine and cysteine. *H. abyssinica* rhizomes were found to have the highest concentrations of alkaloid (4.4 ± 1.12) % and phenolics (2.37 ± 0.58) % while *H. abyssinica* flowers exhibited the highest flavonoid content (1.32 ± 0.14). *H. africana* rhizomes had the highest saponin content (2.4 ± 0.54) %. *Hydnora africana* and *abyssinica* species thus exhibited very high potential for drug development and more insights on their pharmacological pathways are invited.

Keywords: *Hydnora africana*