Comparative antimicrobial and antioxidant studies of two closely related species of Saba

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Saba senegalensis (A. DC) Pichon and *Saba thompsonii* (A. Chev) Pichon (Apocynaceae) are closely related species of the genus *Saba,* native to West Africa. Although widely used in Ghana for wounds, dysenteric diarrhoea and tuberculosis [1], there is no known scientific verification of the use of these climbers. Close resemblance of the plants often results in them being used interchangeably during traditional preparations. The study investigates antimicrobial and antioxidant activities of their crude alcoholic extracts for scientific credence and the effect of using the plants interchangeably. Minimum Inhibitory Concentration (MIC) of *Saba senegalensis* (SS) and *Saba thompsonii* (ST) were obtained using micro-dilution method [2] at concentrations 30 – 0.0146 mg/mL screened against selected microorganisms (Gram-positive: *Staphylococcus aureus*, *Streptococcus pyogenes*, Gram-negative: *Pseudomonas aeruginosa, Escherichia coli, Salmonella typhi*, fungi: *Candida albicans*). Antioxidant effects were assayed using DPPH radical scavenging [3], total antioxidant capacity [4] and total phenolic content [5]. Both extracts had activity against one or more of selected microorganisms (MICs ranging from 7.5 mg/mL-30 mg/mL). EC_{50} values of 0.02325 mg/mL and 0.01931 mg/mL were recorded for DPPH radical scavenging activity of SS and ST, respectively (reference drug, vitamin E, 0.00567 mg/mL). Total antioxidant capacities of SS and ST were 264.8 ± 31.50 mg/g and 276.3 ± 42.75 mg/g of vitamin E, respectively. Total phenolic content expressed per gram equivalent of tannic acid was determined as 109.1 ± 2.24 mg/g for SS and 87.33 ± 2.43 mg/g for ST. SS has broad spectrum activity and higher phenolic content whereas ST has a narrow spectrum, higher total antioxidant capacity and DPPH radical scavenging activity. Traditional uses of *S. senegalensis* and *S. thompsonii* as antimicrobial agents are valid and interchanging them in preparations may result in varied treatment outcomes.

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References:

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