Antibacterial properties of Curtisia dentata leaves and some triterpenes/active principles isolated from them

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Curtisia dentata leaves were collected from Buffelskloof Private Nature Reserve in Mpumalanga province (South Africa) in April 2014. C. dentata is traditionally used in the treatment of sexually transmitted infections, diarrhoea, stomach complaints and as a purgative. Dried leaves were extracted separately with ethanol, chloroform, diethyl acetate and acetone. The extracts were evaluated for antibacterial activity using micro dilution assay against ATCC strains of Escherichia coli, Pseudomonas aeruginosa, Mycobacterium smegmatis and some clinical isolates (Moraxella catarrhalis, Proteus mirabilis and Staphylococcus aureus) obtained from HIV patients at the Nongoma District hospital in KwaZulu-Natal Province. Ethanol, chloroform and acetone extracts of C. dentata exhibited lowest minimum inhibitory concentration (MIC) value of 0.78 mg/ml against P. aeruginosa, while diethyl acetate extract exhibited an MIC value of 3.13 against E. coli, M. catarrhalis, M. smegmatis and P. mirabilis. Two isolated compounds C. dentata ethanol extracts- pentacyclic triterpenes, ursolic acid (UA) and betulinic acid (BA) exhibited antibacterial activity. The BA and UA exhibited antibacterial activity with MIC values of 0.06 and 0.08 mg/ml against S. aureus and P. mirabilis respectively. The observed biological activity of the extracts and the isolated compounds validates the use of C. dentata leaves in the treatment of various infectious diseases.

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