PHYTOCHEMICAL AND BIOLOGICAL STUDIES OF THE COMPOUNDS OF AERIAL PARTS OF *SENECIO LYRATUS* (ASTERACEAE)

PHILIP NGUNYI NDIRITU

A thesis submitted in partial fulfillment for the degree of Master of Science in chemistry in the Jomo Kenyatta University of Agriculture and Technology (JKUAT).

2008

ABSTRACT

Extracts of the aerial parts of *Senecio lyratus* were phytochemically and biologically studied. The extracts exhibited biological activity against bacterial and fungi. The aerial parts of *S. lyratus* were collected from Kericho District in Kenya. Brine shrimps (*Artemia salina*) lethal toxicity tests were done on *n*- hexane, dichloromethane and methanol extracts. Their LD_{50} were 506.11, 553.21 and 689.44 ppm, respectively. The n-hexane extract was found to be more potent and its column chromatographed fractions were subjected to anti-bacterial and anti-fungal tests *in vitro*. Two fractions RSL9 and RSL5 had equal inhibition diameters of 9.00 mm against *Staphylococcus aureas* and 8.33 mm against *Bacillus subtilis* at 1000 ppm. The isolated pure compounds were also subjected to anti-bacterial and anti-fungal assay test and proved to be relatively active. Compounds Rsle and Rslb had inhibition diameters of 10.00 and 11.67 mm against *Candidas albicans* fungi, respectively. The highest inhibition diameters for Rsle and Rslb against *Pseudomonas aureginosa* bacteria were 8.33 and 7.33 mm, respectively at 1000 ppm. Three compounds were characterized from the *n*-hexane extract by use of physical and spectroscopic data. The isolated compounds were β-amyrin (**24),** β-sitosterol (**25**) and stigmasterol (**26**). A fourth compound is yet to be characterized.