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**DE LA SALLE UNIVERSITY**

TWO NOVEL MONOTERPENE GLYCOSIDES  
FROM *ERIGERON LINIFOLIUS* WILLD.  
&  
SESQUITERPENE LACTONES AND TRITERPENES  
FROM *ELEPHANTOPUS SCABER* LINN.

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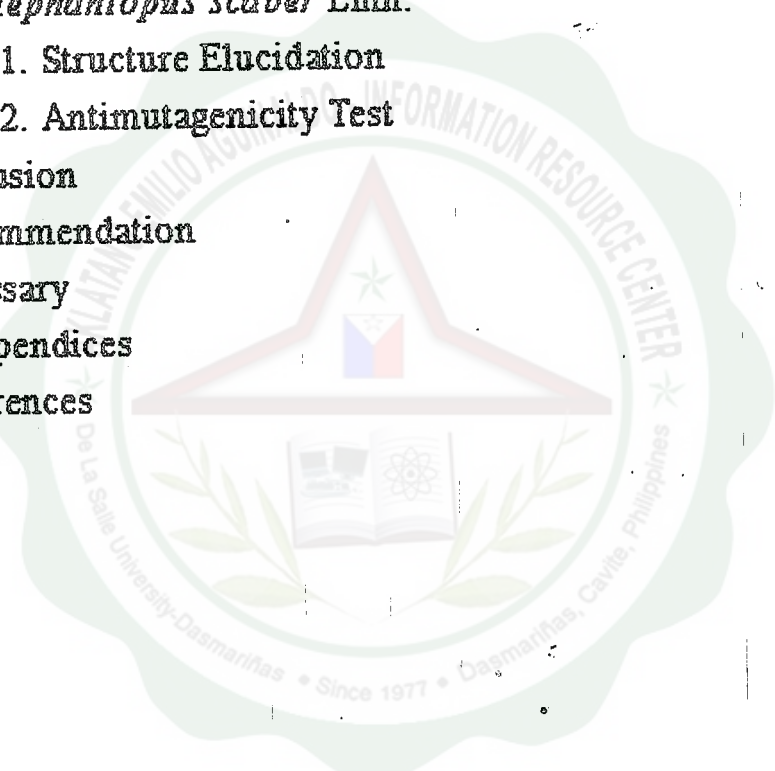
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## ABSTRACT

Two novel monoterpene glycosides, a sesquiterpene and stigmaterol were isolated from the chloroform extract of a Philippine medicinal plant, *Erigeron linifolius* Willd. by repeated gravity column chromatography. The structure of the first glycoside was elucidated by nmr analyses such as  $^1\text{H}$ ,  $^{13}\text{C}$ , Correlation spectrometry (COSY), Distortionless Enhancement by Polarization Transfer (DEPT) and mass spectrometry (MS). The structure of the second glycoside was determined by comparison of  $^1\text{H}$ ,  $^{13}\text{C}$  and MS with the former glycoside. The identity of the sesquiterpene was established by  $^1\text{H}$  and  $^{13}\text{C}$ -nmr while the stigmaterol was confirmed by the equivalent  $^{13}\text{C}$ -spectral data with those on the literature.

The chloroform extract of the air dried leaves of *Elephantopus scaber* Linn. afforded six isolates which were also obtained by repeated gravity column chromatography. The structures of the compounds were elucidated by nuclear magnetic resonance spectroscopy. The isolates were identified as deoxyelephantopin, isodeoxyelephantopin, lupeol, lupeol acetate, stigmaterol and a diadinoxanthin derivative.



## I. INTRODUCTION

Plants of the family Compositae have received much attention as they contain a large number of compounds having a wide range of applications. In the pharmaceutical industry, the isolated compounds have been used as medicines or toxins. Moreover, they have also provided information on the evolutionary and systematic relationships of the botanical sources from which they are derived<sup>1</sup>. Two plants, belonging to the family Compositae, namely ; *Erigeron linifolius* Willd. and *Elephantopus scaber* Linn. will be studied for their phytochemical constituents, specifically the terpenes.

*Erigeron linifolius* Willd. is an erect plant widely distributed throughout the tropics. In the Philippines, a cataplasm of the fresh plant is applied on wounds, contusions and dislocations<sup>2</sup>. A number of chemical investigations on the genus *Erigeron* have been reported on the isolation of biologically active compounds. Studies on *Erigeron linifolius* Willd. reveal that the oil contains 12 mono- and sesquiterpenoids and 4 acetylenic compounds along with 6 unidentified products. Furthermore, the oil also possesses inhibitory effects against microbes<sup>3</sup>.

*Elephantopus scaber* Linn. is a common herb found throughout the tropics. In the Philippines, a decoction of the roots and leaves is given as diuretic, febrifuge, emollient and for urethral discharges<sup>2</sup>. A number of sesquiterpene lactones and triterpenes were isolated from plants of the genus *Elephantopus*. Previous investigations of *Elephantopus scaber* Linn. afforded germacranolides deoxyelephantopin<sup>4</sup> and isodeoxyelephantopin<sup>5</sup>, lupeol<sup>6</sup>, lupeol ac-



etate<sup>4</sup> and stigmasterol<sup>6</sup>. Deoxyelephantopin and isodeoxyelephantopin were found to be tumor inhibitors<sup>5</sup>. Results of the antimutagenicity test showed 85.20% reduction in micronucleated polychromatic erythrocyte cells for deoxyelephantopin, 89.98% reduction for lupeol, 88.54% for lupeol acetate<sup>7</sup>, 31.9% for stigmasterol and 33.05% for diadinoxanthin derivative<sup>8</sup>.

### Scope and Objectives of the Study

This research aims to isolate and elucidate the structures of the terpene constituents from the chloroform extract of two Philippine medicinal plants, *Erigeron linifolius* Willd. and *Elephantopus scaber* Linn.

