

## Bioactive Constituents of *Conyza Albida*

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**Abstract:** Alkynes and spathulenol were isolated from *Conyza albida* (Asteraceae); some of the compounds were lethal against *Artemia* sp. and cytotoxic against KB cells.

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### Introduction

*Conyza albida* Willd. ex Sprengel (Compositae) is a species growing in Argentina. Formerly, it was included as a synonym of *C. bonariensis* var. *microcephala* Cabr., but, there is enough evidence to consider it a valid entity at species level [1].

*Conyza albida* is reported to have expectorant, antitussive, and antiinflammatory activities [2,3]. Since *C. albida* usually grows together with *C. bonariensis* populations, it is believed that both species are useful in the treatment of urinary affections, liver diseases, stomach ulcers, and to wash sores [4] as well as an antihelmintic, digestive and diuretic [5,6,7].

There are no phytochemical studies, nor information on the active constituents of *C. albida*. We now present the results on the bioactivity-guided fractionation of an active extract of the leaves of *C. albida* and the evaluation of the activity of the pure compounds against *Artemia* sp., KB cells and as topoisomerase I inhibitors.

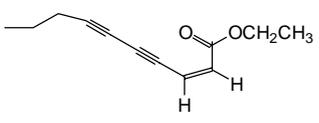
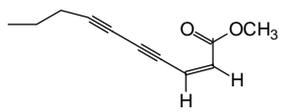
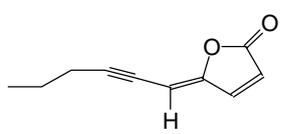
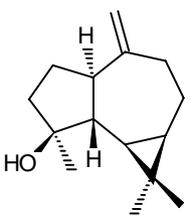
### Experimental Procedures

Dry leaves of *Conyza albida* were extracted with CH<sub>2</sub>Cl<sub>2</sub>. The total extract MeOH-H<sub>2</sub>O 20% was partitioned between hexane, Et<sub>2</sub>O, EtOAc and H<sub>2</sub>O. All the extracts, including the water extract, were concentrated to dryness and tested in the brine shrimp toxicity test (BSTT). The hexane and Et<sub>2</sub>O extracts gave positive results with LC<sub>50</sub> = 99 µg/ml and LC<sub>50</sub> = 96 µg/ml, respectively. They were fractionated, guided by the BSTT, by vacuum liquid, centrifugal planar and preparative thin layer chromatographies. The isolates were identified by a combination of the following spectroscopic methods:

GC-MS, IR, UV,  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR.

## Results and Discussion

The ethyl ether extract afforded two bioactive fractions with similar chemical composition. After further purification the following compounds were identified: alkenynes **1**, **2** [8,9], **3** [8,9], and spathulenol **4** [10]. The hexane fraction contained alkenynes **1-3** and 1-dodecen-7,11-dimethyl-3-methylene [11] which was inactive. This is the first report on compound **1**, although the *trans* isomer was obtained by synthesis [12].

Compound	BSTT ( $\mu\text{g/ml}$ )	KB ( $\mu\text{g/ml}$ )	DNA Topoisomerase I (%)
 <p><b>1</b></p>	<b>1.3</b>	<b>7.3</b>	-
 <p><b>2</b></p>	<b>1.2</b>	<b>9.2</b>	-
 <p><b>3</b></p>	<b>5.2</b>	<b>19.1</b>	<b>21</b>
 <p><b>4</b></p>	<b>4.2</b>	<b>9</b>	<b>39</b>

Positive controls: BSTT, berberine  $\text{LC}_{50} = 8.4 \mu\text{g/ml}$ ; against KB cells, colchicine  $\text{IC}_{50} = 0.02 \mu\text{g/ml}$ .

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