Phytotoxic Activity of a Benzofuran Isolated from *Trichocline reptans*

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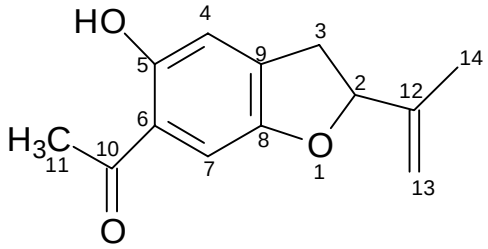
Abstract: Phytotoxic Activity of the 6-acetyl-5-hydroxy-2isopropenyl-2,3-dihydrobenzofurane (**1**) isolated from *Trichocline reptans* (*Asteraceae*) was investigated in two weed species. Results indicate that the best growth inhibition effect ocurres on *Chenopodium album* weed. Phythotoxic effect of the *T. reptans* chloroformic extract and of the benzofurane are discussed and compared in the two weed species.

Introduction

In previous phytochemical study in *Trichocline reptans* (*Asteraceae*) collected in Salta, Argentina, we identified benzofurane **1**, linear furanocoumarins and coumarins [1].



(1)

Regarding the importance of benefical or toxic biochemical interactions that ocurrs between higher plants, where Allelopatie is the reference [2], we evaluated the phytotoxic effect of both the extract of *T. reptans* and the benzofurane on two weed species that affect our country cultivars, *Chenopodium album* and *Sorghum halepense*. We tested the inhibitory effect on radicle and leaf growth [3].

Experimental

Dihydrobenzofurane **1** was isolated from the Cl_3CH extract by “dry column chromatography” method. The structure of this compound was elucidated by spectroscopic methods: UV, IR, ^{1}H- RMN ,

^{13}C- RMN and EM.

The Phytotoxic Assay [3], was carried out on *Chenopodium album* and *Sorghum halepense* with aqueous solutions (80 ppm) of the $HCCl_3$ extract and the dihydrobenzofurane. The data were taken after 7 days of incubation. Examination and summaries of data are based on analyses of variance (block design ANOVA).

Results and Discussion

The results of phytotoxic assay, led us to suggest that **1** produces significant effect on the growth of Dicotiledoneous weed *Ch. album*, where there is a marked radicle inhibition (>50%) than on the Monocotiledoneous weed *S. halepense.* We compared the treatments with the extract and the pure compound and the selectivity of their phytotoxic action.

References and Notes

1. Alarcón, S.R.; de la Fuente, J.R.; Novara L y Sosa, V.E. *An. Asoc. Qca. Arg*. **1998**, *86*, 248.
2. Molisch, H. *Der Einfluss einer Pflanze auf die andere Allelopathie*; Gustav Fischer: Jena, 1937.
3. Vaccarini, C.E.; Palacios, S.M.; Meragelmann, K.M.; Sosa, V.E. *Phytochemistry* **1999**, *50***,** 227.