Study of the Mechanism of Digestive Action of a Decoction Prepared with “Paico” (*Dysphania multifida*)

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INTRODUCTION

In Argentina, ethnomedicine has been recognized for more than five hundred years. Only a small amount of vegetables with medicinal active ingredients have been studied to date. *Dysphania multifida*, formerly known as *Chenopodium ambrosioides*, is a plant that grows wild throughout the country and is called “paico” by local people. In this work, a review of the possible components and mechanisms of action of a preparation made with paico (*D. multifida*) collected in this area of Gobernador Gregores, Santa Cruz, Argentina, (48.75 S - 70.24 W) is carried out. This preparation is used mainly as a digestive. The preparation is a decoction, obtained by the action of water kept boiling for 2 minutes, on the aerial part of the totally crushed vegetable (5% w / v). Let it rest for 15-20 minutes, filter.

FUNDAMENTAL COMPONENT: PAICO - PAICO HEMBRA

Dysphania multifida - Plantae / Magnoliophyta / Magnoliopsida / Caryophyllales / Chenopodiaceae / Dysphania / multifida

DESCRIPTION: Perennial herb, pubescent, with a thickened stem base and numerous annual branches, prostrate. Strongly aromatic leaves, pinnatisects, the lower ones up to 4 x 1.5 cm, the upper ones up to 1.5 cm. Some plants, after fruiting, produce whole, spatulate leaves at the ends of the twigs. Flowers 1 to 8 in the axils of the leaves, with an obovate calyx formed by half-free sepals, 5 stamens and a papillous ovary, with 2 short stigmas. Fruit enclosed by the calyx of up to 3 mm after fruiting. It blooms in spring. Common in modified soils, such as roadsides. Native to South America. In all Argentina, Chile and Uruguay. It has numerous creeping stems covered with small dark green leaves with an intense "paico" smell. In popular medicine it is used internally as a digestive, stimulant, sudorific, carminative, emmenagogue, antiasthmatic, diuretic, vermifuge, antipyretic and sedative: and externally in strokes, sprains and bruises.

OBJECTIVE

The objective of this test was to find *"in vitro"* the pharmacological properties of the decoction of *D. multifida*.

METHODOLOGY

As biological material, leaves and seeds of *D. multifida* collected in autumn, totally crushed, were used. Egg albumin was used and the reagent used was: Hydrochloric acid (HCl 0.1 N). In the Laboratory of the School Agropecuaria N ° 1 the following tests were carried out in order to estimate the activity of the decoction: 1 - Hydrodistillation of the essential oil. 2 - Biuret reaction.
1-Hydrodistillation of essential oil. The equipment was assembled in a similar way to the Clevenger still. The leaves and seeds of ground *D. multifida* were worked. This procedure was repeated numerous times.
2-Biuret reaction. The Biuret reaction is a characteristic protein search reaction. It was prepared, decoction of *D. multifida* (d. *D m*) according to the Argentine Pharmacopoeia. The following mixtures were prepared in four test tubes: Tube 1.- 6 ml of albumin + 6 ml of water. Tube 2.- 6 ml of albumin + 1.5 ml of water + 4.5 ml of HCl, 0.1 N. Tube 3.- 6 ml of albumin + 1.5 ml of (d. *D m*) + 4.5 ml of HCl1 , 0.1 N. Tube 4. - 6 ml of albumin + 1.5 ml of (d. *D m)* + 4.5 ml of water. 2 ml of the Biuret reagent was placed in all tubes. The tubes were then placed in a water bath, at 40 ° C. A few minutes later, the tubes took a pink-purple color, only in Tube 3 there was a rinsing, this is a consequence of the activity of the (d. *D m*) which, in an acid medium, has hydrolyzed albumin.

RESULTS

The results of the tests were: in the hydrodistillation of the essential oil a few drops of the essential oil were obtained, approximately 0.5 ml per test. They are reserved for after several tests and having collected about 10 ml, send to a laboratory that has a chromatograph. The Laboratory of Research of Aromatic and Medicinal Plants of the Faculty of Natural Sciences of the National University of Patagonia San Juan Bosco has carried out chromatographies on D. multifida obtained as main constituents Alpha terpinene, p-Cimeno and Ascaridol (48 to 61%) .
The results of the Biuret reaction were: In the mixture in Tube 3: albumin + (d. *D m*) + HCl, the Biuret reaction was positive, as it was pink in color that subsequently cleared until the color was no longer visible. to identify unlike the other mixtures that remained with the same color when in a water bath with a temperature of 40 ° C. This is due to the fact that the (d.*D m*) in the presence of hydrochloric acid, mimicking the digestive function, allowed the hydrolysis of proteins, which in this case is albumin. It broke its peptide bonds at the amino acids phenylalanine and tyrosine, leaving the final product: polypeptides, which are the specific reagents for the Biuret reaction.

CONCLUSION

It is concluded in this first approach to the subject that according to the chemical determinations developed *"in vitro"* in this study, the decoction of *D. multifida* contains essential oils with components that explain its stimulating action on gastric secretions and spasmolytic action, but also substances that act stimulating digestion, through a proteolytic action.

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