EVALUATION OF NATURAL COMPOUND IN THE *IN VIVO* MODEL.

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Introduction. Healing is the process that performs wound repair, resulting in the formation of scar tissue; it includes three phases presented in a sequential manner and in specific periods of time. The process also have cellular elements and extracellular agents that characterize it (1,2,3). Our group have demonstrated that *Bacopa procumbens* present *in vitro* a healing effect and provide the first evidences that extract contains metabolites that stimulate 3T3 mouse fibroblasts healing in early stages, inducing mechanisms such as proliferation, migration and adhesion to fibroblasts that are important events in wound repair (3). Collagen is the main element that furnishes connective tissues with mechanic integrity, and it plays an important role in load bearing (4).
In this work we evaluated the healing effect of a biotechnological compound developed in a *in vivo* model of healing .

Methods. The product was included in a vehicle and was used to evaluate the healing effect on rats, using excision wound of 1cm^2. Animals were randomly divided into 6 groups for each model: i) Negative control group without treatment, ii) positive control treated with commercial pharmaceutical formulation, and iii) 3 groups of animals treated with the product at 100mg 200mg and 400mg /doses for day respectively and iv) a group treated with the vehicle. All groups were treated for 15 day. The wound tissue was removed and used for biophysical and histopathological analyses.

Results. Biophysical analysis showed that the percentage of wound contraction is mayor in the group treated with 400mg of the natural compound (Fig.1), and the healing area was minor in the same group compared with controls (Fig.2).

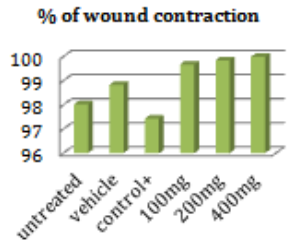

Fig.1 The percentage of wound contraction is observed in the different groups of treatment.

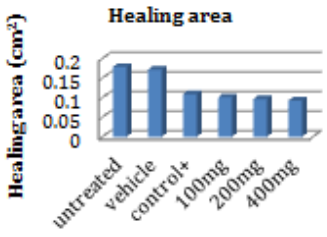

Fig.2 The wound area in cm^2 is observer in the different groups of treatment.

Total collagen content based on hidroxiproline index indicated that the collagen is increased in the group treated with 400mg of product in comparison with untreated animals.
Histopathological evaluation was done by Hematoxylin and Eosin, Masson, Elastic Fiber and PAS staining. Results showed an incomplete re-epithelization process in untreated control groups, characterized by the presence of semi-rounded fibroblasts, granulation tissue and some collagen fibers that are becoming in a horizontal disposition without the presence of epidermal basal layer. On the other hand, groups treated with the product showed increment of re-epithelialization process in a dosis dependent manner; being the group treated with 400mg the most effective concentration, the re-epithelization is more completed with fibroblast oriented and elongated, and no inflammatory infiltrate was evident. Also in contrast with control groups, the epidermal basal layer appeared thinner.

Conclusions. Our data demonstrate that our product (in preparation for a patent) promotes wound-healing activity. Further evaluation in inmunohistology analysis and gene expression analysis will allow us to known the mechanism for the treatment of wounds and also to determine genes that could be involved.

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