

## ***Lophocereus schottii* Polar Fraction Reduces *TGFβ1* Expression in Chemically Induced Hepatocarcinogenesis**

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**Introduction and Objectives:** The anticancer effect of *Lophocereus schottii* polar fraction (LsPF) has been tested in models of lymphoma; however, its action in hepatocellular carcinoma remains to be elucidated. The present study aims to analyse the effect of LsPF on the progress of damage induced by diethylnitrosamine (DEN) and N-2-Fluorenylacetylacetamide (2-AAF) chronic administration.

**Materials and Patients:** Male Wistar rats (180-200 g) were grouped as follows: a) Control (Ctl; n=5); no treatment (Tx), b) LsPF (n=4), treated with LsPF (50 mg/Kg i.g.) 3 times a week; c) Damage (Dmg; n=6), treated with DEN (50 mg/Kg, i.p) the first day, and with 2-AAF (25 mg/Kg, i.g.) on the third day; d) Damage+LsPF (Dmg+LsPF; n=5) received the Dmg group Tx; then, Tx with LsPF started to be administrated along with the Dmg Tx at the seventh week. The Txs were sustained for 13 weeks; livers and serum were collected afterward. Hematoxylin & Eosin and Masson's Trichrome stains, and serum biochemistry were performed. Statistical parametric Student's t-tests or nonparametric Kruskal-Wallis and Mann-Whitney U were performed using the software GraphPad Prism, version 8. A p value < 0.05 was considered significant.

**Results:** In contrast to Ctl and LsPF groups, the weights of the groups administrated with Dmg Tx were decreased. Additionally, the Dmg Tx produced discoloration and tumors in the liver of the treated rats, and a significant increase in the ratio between the liver and animal weight. Furthermore, serum ALT, AST, ALKP, GGT, total bilirubin, and total proteins levels were increased; significant differences between the Dmg and the Dmg+LsPF groups were not found. The gene expression analysis demonstrated that expression of *CAT*, *SOD*, *COL1A*, and *TGFβ1* was significantly increased in the Dmg groups compared to the Ctl group; when these results were compared to the Ctl and the Dmg+LsPF, significant differences were not found. Moreover, *TGFβ1* expression levels were lower in the Dmg+LsPF compared to Dmg group. LsPF tx increased the ALT and total protein levels in serum, and the expression of *CAT* and *COL1A* by itself. Nevertheless, the histological analysis did not display any alterations due to the administration of this fraction.

**Conclusions:** LsPF administration did not show a significant effect over the damage on the liver; however, the gene expression analysis provided indications that this fraction might be acting over genes related to HCC development.

**Ethical statement:** The study protocol (code CI-01720) was approved by the Ethics, Research, and Biosecurity Committee of the Universidad de Guadalajara on 20 October 2020.

**Declaration of interests:** The authors declare no conflict of interest.

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## **Colorimetric test for early diagnosis of spontaneous bacterial peritonitis.**

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**Introduction and Objectives:** The diagnosis of spontaneous bacterial peritonitis (SBP) requires biochemical analysis that can sometimes take time, so having an effective and rapid method could shorten the time to start the antimicrobial and reduce the risk of complications. Objective: To validate the colorimetric test (reagent strips) in the diagnosis of SBP.

**Materials and Patients:** Observational, prolective, and analytical study of the colorimetric test for the diagnosis of PBE. Diagnostic paracentesis was performed in patients with suspected PBE, for the analysis of the fluid by means of the colorimetric scale of the Mission test strip and compared with the cytochemical analysis in the laboratory (polymorphonuclear  $\geq 250$  cells/mm<sup>3</sup>). To assess the test strip as a diagnostic test, a cut-off point of strip reading  $\geq 15$  leukocytes is used. A 2 × 2 table is used to compare the positives and negatives of PBE by both cytochemical and dipstick methods. S, E, PPV and NPV were calculated.

**Results:** 42 patients with ascites and suspected SBP were included. Of these, 24 patients (57.14%) were in Child-Pugh stage C, 17 patients (40.27%) were in Child-Pugh stage B and only 1 patient (2.38%) was in Child-Pugh stage A. The causes of chronic liver disease were alcohol consumption in 17 patients (40.27%), MASLD in 15 patients (35.71%), autoimmune liver disease in 4 patients (9.52%), unaffiliated etiology in 4 patients (9.52%), infection secondary to hepatitis C virus in 2 patients (4.76%). Of the total, 23 patients (54.7%) were female with a mean age of 54 years (SD  $\pm$  12.06). Thirteen patients were diagnosed with PBE, 81% of them with grade II ascites. The sensitivity of the dipstick compared to the cytochemical method was 92.3%, its specificity 86.2%, its positive predictive value (PPV) 99.4%, and its negative predictive value (NPV) 98.6%.

**Conclusions:** Colorimetry (test strips) show adequate sensitivity and specificity, making them a low-cost, easy-to-use, but above all quick to interpret tool for early initiation of antimicrobial therapy in patients with ascites and spontaneous bacterial peritonitis. Although the sample is small, it shows an interesting trend that should be confirmed.

**Ethical statement:** The research was carried out in accordance with the Helsinki Declaration of the World Assembly 2013.

**Declaration of interests:** None.

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