

THE HEPATOPROTECTIVE AND ANTIOXIDANT ACTIVITIES OF STANDARDIZED EXTRACTS OF TOMATO BY-PRODUCTS

A.A. Seida¹, N.D. El Tanbouly¹, W.T. Islam¹, H.H. Eid¹, S.A. EL-Maraghy² and A.S. El Senousy¹

¹ **Department of Pharmacognosy, Faculty of Pharmacy, Cairo University, Egypt**

² **Department of Biochemistry, Faculty of Pharmacy, Cairo University, Egypt**

Objective

This study aimed to compare the hepatoprotective and antioxidant activities of a standardized hydroalcoholic extract of tomato processing by-products, dried by two methods and to investigate the nutritional composition of these by-products.

Methods

Tomato by-products, collected from the agro-food industry, were either dried at room temperature (AT) or freeze dried (LT) and their hydroalcoholic extracts were prepared. Liver-damaged rats (i.p. CCl₄, 1.5 ml/kg b.wt., for 2 weeks) were pretreated with daily oral dose (200 mg/kg b.wt., 2 weeks) of AT and LT extracts, whose administration was continued for another 2 weeks, during the induction. The hepatoprotective activity was assessed via measuring serum levels of aminotransferases, total protein and albumin, as well as a histopathological evaluation. The antioxidant effect was evaluated by measuring hepatic malondialdehyde, glutathione, protein thiol levels, glutathione-peroxidase and glutathione-S-transferase activities. Standardization of extracts was carried out by spectrophotometric determination of lycopene. Proximate analysis, amino acid composition, elemental and vitamin analysis of LT and AT were determined

Results

LT and AT extracts showed significant hepatoprotective and antioxidant activities. LT was shown to be more potent. The lycopene contents were 86 and 40 µg/g extract in LT and AT, respectively. Vitamin E and β-carotene contents were 2.3, 1.26 mg% and 966.6, 71.5 µg% in LT and AT, respectively. K, Ca and P were the major identified minerals. Traces of vitamins C, B₁ and B₂ were detected.

Conclusions

These findings demonstrate the importance of tomato processing waste as a promising hepatoprotective and antioxidant product for nutraceutical use, showing promising results for the reuse of agro-food wastes.