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CYTOTOXICITY AND ANTI-INFLAMMATORY EFFECT OF LICHEN EXTRACT ON HACAT CELLS

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INTRODUCTION :

Lichens are symbiotic organisms associating fungi with algae or cyanobacteria, they are used in traditional medicine to treat different diseases such as pulmonary diseases, wounds, and arthritis. Their secondary metabolites are known for their potent biological activities. The aim of this study is to evaluate the effect of lichen alcoholic extract on HaCaT cells viability and its anti-inflammatory activity through the inhibition of ROS and TNF-α produced by LPS stimulated HaCaT cells.

MATERIAL AND METHODS

Lichen extraction

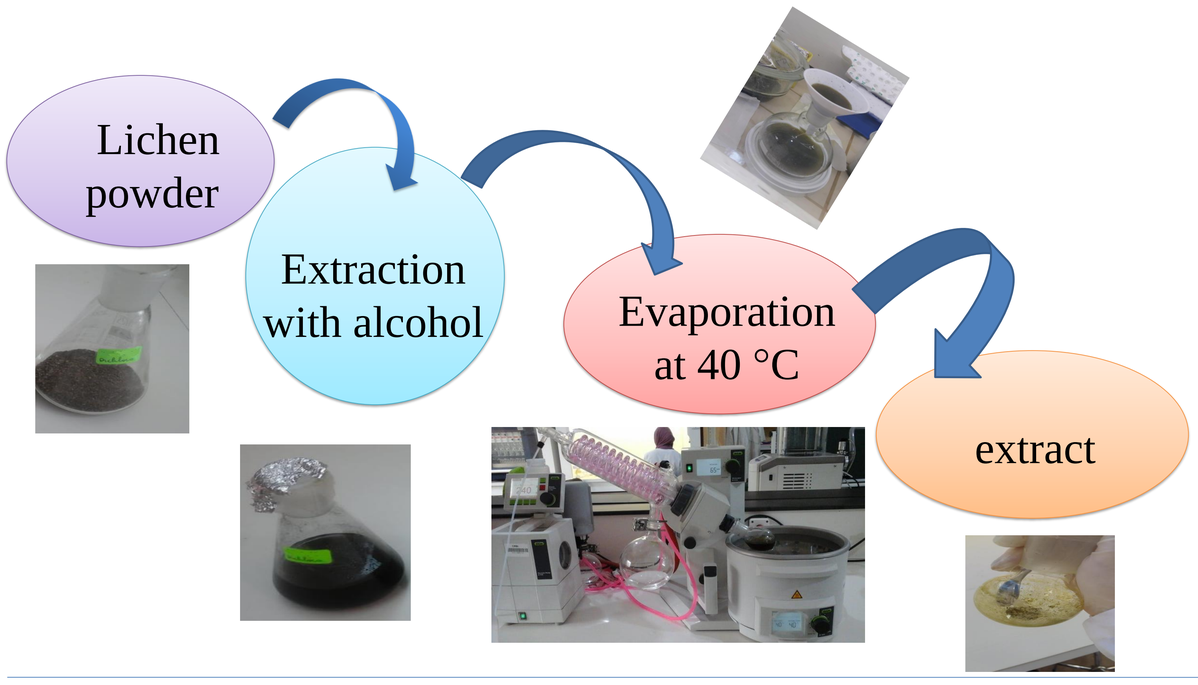

Fig. 1. Lichen extraction

Total phenolic and flavonoids contents

Phenolic and flavonoids compounds of the alcoholic lichen extract were determined using a 96 well plates [1]; [2].

Cell culture

HaCaT cells were cultured, at 37 C° and 5% CO_2,in Dulbecco's modified Eagle's medium (DMEM) high glucose. 10% fetal bovine serum (FBS), 1% Penicillin (100 U/mL) and streptomycin (100 mg/mL).

Cell viability assay

The effect of the extract on cell viability was assessed by the MTT assay as previously reported [3].

Intracellular reactive oxygen release (ROS) production

Intercellular ROS formation was measured using the H2DCF-DA probe (2',7'-dichlorofluoresceindiacetate) as depicted [4].

TNF-α release

TNF-α levels were determined using the Diaclone human TNF-α Elisa kit following the manufacturer's instructions.Results were expressed as pg/mL.

RESULTS

Table 1. Total phenolic and flavonoids contents in lichen extract

	TPC (µg GAE/ml)	TFC (µg QE/ml)
Extract	++++	++

Cell viability:

The extract was not toxic on HaCaT cells ,where the viability was 100% (Data not shown).

ROS release

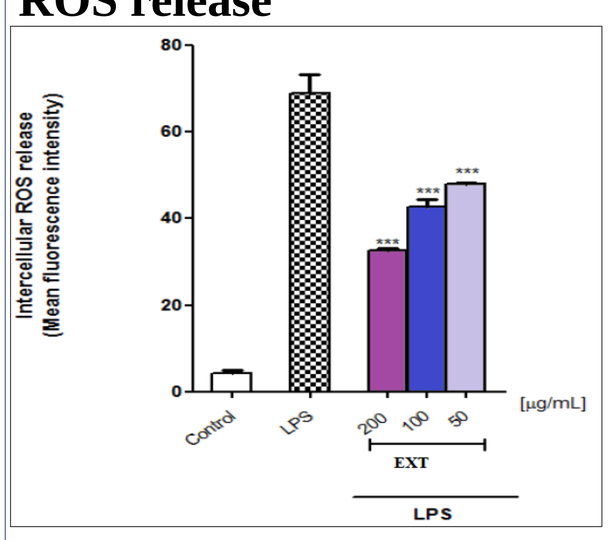

Fig. 2. Effect of lichen extract on the intracellular ROS levels In LPS stimulated HaCaT cells.

TNF-α release

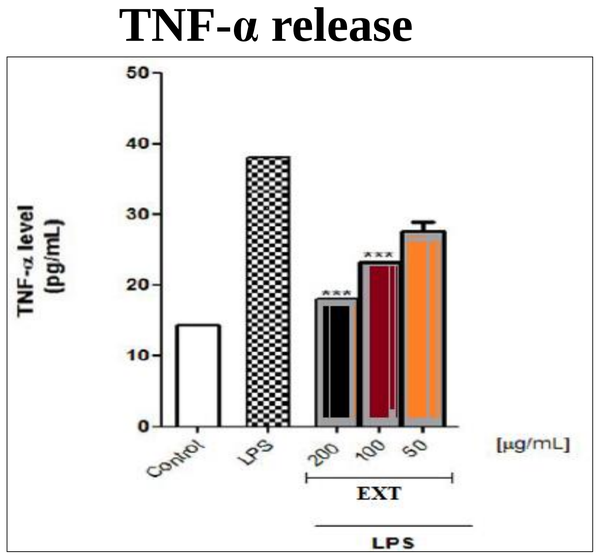

Fig. 4. Effect of the *extract* on TNF-α levels (pg/mL) in LPS Stimulated HaCaT cells.

CONCLUSION

The lichen extract could be a potent natural safe source of bioactive compounds with anti-inflammatory effects.

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