25TH NATIONAL & 11TH INTERNATIONAL ANNUAL CONGRESS
ON RESEARCH AND TECHNOLOGY OF IRANIAN MEDICAL SCIENCES STUDENTS
URMIA UNIVERSITY OF MEDICAL SCIENCES, URMIA, IRAN

Effect of *Malva neglecta* Total Extract on Bleomycin-Induced Pulmonary Fibrosis in Rats

Amir Albabay[1], Ali Hosseini Sharifabad[1*], Afsaneh Yegdaneh[2], Mahdi Tavakolizadeh[3], Hamide Dabaghydost[4]

[1]School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Science, Esfahan, Iran
[2]Department of Pharmcognosy, School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Science, Esfahan, Iran
[3]Department of Pharmacognosy, Faculty of Pharmacy, Zanjan University of Medical Sciences, Zanjan, Iran
[4]School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Science, Esfahan, Iran

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***Corresponding Author:**
School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Science, Esfahan, Iran

Citation:
Albabay A, Hosseini Sharifabad A, Yegdaneh A, Tavakolizadeh M, Dabaghydost H. Effect of *Malva neglecta* Total Extract on Bleomycin-Induced Pulmonary Fibrosis in Rats. *Iranian biomedical journal* 2024; 28(7): 236.

ABSTRACT

Introduction: Idiopathic pulmonary fibrosis is a chronic and progressive respiratory disease. *Malva neglecta* possesses significant anti-inflammatory and antioxidant activities. This study investigated the therapeutic effects of hydroalcoholic extract of this plane species on pulmonary fibrosis induced by bleomycin (BLM).

Methods and Materials: Male Wistar rats (n = 36; 180-200 g) were randomly divided into six groups (n = 6). The control group (Group I) received normal saline intratracheally (single dose) on day one. Other groups received a single dose of BLM (7.5 IU/Kg) intratracheally on the first day. The animals were then fed daily for 28 days as follows: normal saline (Group II), pirfenidone (Group III), 300, 600, and 900 mg/kg *Malva neglecta* extract (Groups IV, V, and VI, respectively). The rats were finally euthanized, and the lung tissues were removed for histological analysis and biochemical assessments.

Result: Intratracheal administration of BLM significantly increased the lung tissue levels of hydroxyproline, malondialdehyde, and free radicals compared to the control group (p = 0.001). *Malva neglecta* at the dose of 900 mg/kg significantly prevented the increase of these factors compared to the BLM group (p = 0.001). At the same dosage, the plant significantly decreased the aforementioned factors in comparison to its lower dosage (p = 0.01). Lung tissues in BLM-treated groups showed severe tissue damage. In addition, hydroalcoholic extracts of *Malva neglecta* prevented the pathological damage of BML on the lung tissue.

Conclusion and Discussion: Our findings indicate that the total extract of *Malva neglecta* may be effective in treating pulmonary fibrosis induced by BLM. This effect is likely associated with anti-inflammatory and antioxidant properties of the *Malva neglecta* extract.

Keywords: Bleomycin, Fibrosis, Rats