PURPOSE: PF is characterized by apoptosis as well as by inflammation, excessive collagen deposition and fibroblasts' proliferation. The EPO-R is well known to play an important role in the fibrotic-apoptotic pathway. EPO is a multiple functional cytokine with anti-apoptotic, anti-oxidative and anti-inflammatory properties. We looked for the effect of EPO on BLM-induced lung fibrosis, by examining the expression of EPO-R in the lung tissue of rats. MATERIAL AND METHODS: Fifty Wistar rats (300gr) were divided into five groups of 10 animals each: 1) control animals, 2) intratracheal (i.t) and intraperitoneal (i.p) injection of saline (0.5ml/kg), 3) BLM hydrochloride (7.5mg/kg) i.t injection, 4) BLM hydrochloride (7.5mg/kg) i.t injection followed by EPO i.p injection (2000 iu/kg), 5) saline (0.5ml/kg) i.t injection followed by EPO i.p injection (2000 iu/kg). All rats were sacrificed after 14 days. Immunohistochemical evaluation was performed for the expression of EPO-R. A scale of 4 grades was used for the evaluation of the results: 0-25% (A), 25-50% (B), 50-75% (C), 75-100% (D). RESULTS: In groups 1, 2 and 5 (control groups), EPO-R was expressed in the lower grades A (80%) and B (20%). In group 3 (BLM group), EPO-R was expressed in the high grades B (20%), C (70%) and D (10%). In group 4 (EPO group), EPO-R was expressed only in the low grades A (50%) and B (50%). The expression of EPO-R took place in the high grades for BLM group and in the lower grades for BLM+EPO group (p<0.05). CONCLUSION: BLM injection followed by EPO resulted in significant lower expression of EPO-R compared with BLM group. The protective mechanisms of EPO on PF must be further clarified.