The Protective Effects of Ethanolic Extract of Pleurotus ostreatus on cigarette smoke-induced Lung Toxicity in rat

Santun Bhekti Rahimah[1,2], Yuktiana Kharisma[1], Winni Maharani[3], Julia Hartati[3], Susan Fitriyana[4], Nugraha Sutadipura[5], Ieva B. Akbar.[6], Diah Dhianawaty Djunaedi[7], Arto Yuwono Soeroto[8], Tatang Bisri[9]

1. Pharmacology Department, Bandung Islamic University, Bandung, Indonesia
2. Doctoral Programe, Padjadjaran University, Bandung, Indonesia
3. Microbiology Department, Bandung Islamic University, Bandung, Indonesia.
4. Public Health Department, Bandung Islamic University, Bandung, Indonesia.
5. Biochemstry Department, Bandung Islamic University, Bandung, Indonesia.
6. Physiology Department, Bandung Islamic University, Bandung, Indonesia.
7. Biochemistry Department, Padjadjaran University, Bandung, Indonesia
8. Internal Medicine Department, Padjadjaran University, Bandung, Indonesia
9. Anesthesia Departement, Padjadjaran University, Bandung, Indonesia

The corresponding author: Santun Bhekti Rahimah
Department of Pharmacology, Medical Faculty,
Bandung Islamic University, West Java Province, Bandung,
Tamansari Street No 22, postcode 40116,
Indonesia.
Mobile phone number: 0821821800089
E-mail: santunbr94@gmail.com

This research is financed by Faculty of Medicine, Bandung Islamic University

ABSTRACT

Cigarette smoke closely related to chronic obstructive pulmonary disease (COPD). Cigarettes contain 10^{15}-10^{17} free radicals and more than 4700 chemicals, that can cause inflammation in the lungs. This study aims to look at the protective effect of ethanolic extract of P. ostreatus on cigarette smoke-induced lung toxicity in rats.

This experimental used 24 rats divided into Group I (normal), group II (negative control), Group III (treatment-ethanolic extract of P. ostreatus 250 mg/KgBB rat/day) and Group IV (comparison-NAC 600 mg/day). Group II, III, and IV was given 1 hour/day/group of cigarette smoke exposure. The lung toxicity will be seen from the histopathological and hemolytic profile.

Histopathological injury analyzed using Annova and showed significant results ($p \leq 0,01$) and post-hock test with Bonferoni ($p \leq 0,01$) showed that the ethanolic extract of P. ostreatus was significantly different from the negative control. The results of the examination of leukocytes, lymphocytes, hemoglobin, and hematocrit, showed no significant results ($p = 0.14$) with the Fisher extract test.

The conclusion shows that the ethanolic extract of P. ostreatus can prevent lung toxicity in cigarette smoke-induced Lung Toxicity in the rat. Ethanolic extract of P. ostreatus has good antioxidant potential.

Keywords: Ethanolic extract, hematology, Pleurotus ostreatus, lung toxicity.