P5 INHIBITION OF REACTIVE OXYGEN SPECIES PRODUCTION IN RAT PERITONEAL MACROPHAGES BY ETHANOLIC EXTRACT OF *MORUS ALBA*

Rapeeporn Phromgate[1], Bunkerd Kongyingyoes[1], Patchareewan Pannangpetch[1], Veerapol Kukongviriyapan[1], Yupa Kukongviriyapan[2].

[1]*Department of Pharmacology, Faculty of Medicine, Khon Kaen University,*
[2]*Department of Physiology, Faculty of Medicine, Khon Kaen University,*
Khon Kaen 40002, Thailand.

ABSTRACT

Free radicals and reactive oxygen species are known to implicate in the pathogenesis of various human diseases such as atherosclerosis, diabetes and ischaemia-reperfusion injury. Numerous plant constituents have been shown to have free radical scavenging or antioxidant activity. Mulberry (*Morus alba*) leaves have been used to feed the silk worms and now they are also widely prepared as a beverage for healthy, mulberry tea. It has been reported that the extract of mulberry leaves had many pharmacological effects including antioxidant activity. However, most of the information of antioxidant activity of mulberry leaves was evaluated in cell free system. In order to obtain an additional important information for implementing the mulberry leaves in therapeutic intervention, therefore, we examined the intracellular antioxidative activity of mulberry leaves. An ethanolic extract of dried leaves of *M. alba* var.Nakhonrajchasima 60 was used in all investigations. The effect of the extract on superoxide produced within the rat peritoneal macrophages was tested by using H_2DCFDA (2',7'-dichlorodihydro fluorescein diacetate) probe. The production of H_2O_2 was stimulated by phorbol-12-myristate-13- acetate. The fluorescence intensity is proportional to the amount of H_2O_2 produced by cells. The extract of *M. alba* of 100 μg/ml significantly inhibited the production of peroxide (n=5, $P<0.05$). The free radical scavenging and the reductive activities of the extract of *M. alba* were also investigated. The free radical scavenging activity was determined by a method based on the reduction of coloured stable free radical DPPH (1,1-diphenyl-2-picrylhydrazyl). The *M. alba* extract (1-300 μg/ml) scavenged the DPPH in the dose-dependent manner with the IC50 of 20.1 μg/ml. The reductive activity was examined by using the ferric reducing/antioxidant power (FRAP) assay. The extract was able to reduce ferric complex to ferrous form in a dose-dependent mode. The extract at 10 μg/ml had the ferric reducing activity equivalent to vitamin C 1.2 μg/ml. It can be concluded that the ethanolic extract of *M. alba* var.Nakhonrajchasima 60 has the free radical scavenging and the reducing activities in cell free system together with the intracellular antioxidant activity.

Key words : free radical, antioxidant, *morus alba*