ABSTRACT

Incident and death caused by cancer is still high. Study of epidemiology shows that dietary fiber, including cellulose, could reduce the incident of colon cancer but the protection mechanism of cellulose on colon carcinogenesis is being unknown yet.

Carcinogenesis has two phase, i.e. initiation and promotion phase. In the initiation phase, mutation of DNA is permanent. First, there is cell defense mechanism to eliminate DNA damage by DNA repair or apoptosis. If it is failed, the cell will be initiated cell. In this phase, apoptosis hold on important thing to support me in investigation about the influence of cellulose to the apoptosis of colon epithel cells after exposing by DMBA. The objective of this investigation is to show the difference between apoptosis of mice colon epithel cells after exposing by DMBA with or without DMBA, apoptosis of mice colon epithel cells that food contains and not contains of cellulose after exposing by DMBA.

The male BALB/C mice were used in this investigation and were given 0%, 5% or 10% of cellulose. Two weeks after giving cellulose, the mice were exposed by DMBA and were sacrificed 5 days later. The colon would be processed in the paraffin block, than was stained by TUNEL (Terminal Deoxyuridine Nucleotide End Labelling) Assay tehnic with apoptag detection kit.

The result of the analysis of variance shown that there were difference between apoptosis of mice colon epithel cells after exposing by DMBA and without exposing by DMBA. Exposing mice colon epithel cells by DMBA would be able to decrease apoptosis (P < 0,05). There were difference of apoptosis colon epithel cells between mice that food contains cellulose and without cellulose after exposing by DMBA. Giving cellulose would be able to increase apoptosis of mice colon epithel cells after exposing by DMBA (P < 0,05). There were not difference apoptosis of mice colon epithel cells after exposing by DMBA between 5% of cellulose and 10% of cellulose. However, apoptosis of 5% cellulose was higher than 10 % cellulose thus, cellulose of 5% was more effective than celluse 10%.

The conclusion of this study, the mice that exposing by DMBA could decrease apoptosis of mice colon epithel cells. Supplement of cellulose could increase apoptosis of mice colon epithel cells after exposing by DMBA. Cellulose of 5% is more effective than 10%.

Key words : Cellulose, DMBA, apoptosis, colon epithel cell.