EFFECT OF *SPIRULINA MAXIMA* ON TNF- α RESPONSE AND GOBLET CELL COUNTS

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ABSTRACT

Background: Cigarette smoke contains toxic and free radical that may cause oxidative damage, inflammation, and an increased risk of degenerative diseases. For prevention, external antioxidants are required. *Spirulina maxima* contain flavonoid phycosianin and beta carotene. However, few studies have been conducted on the its anti-inflammatory effect. This study aimed to test the effect of *spirulina maxima* on TNF- α response and Goblet cell counts.

Subjects and Method: This was a randomized controlled trial. A sample of 24 Wister rats was selected for this study, and was randomly assigned to 4 groups: (1) A (2 mL water), (2) B (combination of vitamin C 0.2 mg/g BW and vitamin E 0,04IU/ gBW), (3) C (*Spirulina maxima* 250mg/ kg), and (4) D (*Spirulina maxima* 500mg/kg). The rats were exposed to cigarette smoke 3 times a day for 20 days. On day 21, TNF- α level and number of Goblet cells were evaluated. Differences in means were tested by One Way Anova followed by LSD test, or Kruskal-Wallis followed by Mann-Whitney.

Results: Mean $\pm$ SD of TNF- α of group A, B, C, D, were 774.90 $\pm$ 2.32, 34.08 $\pm$ 12.29, 232.83 $\pm$ 26.39, 353.25 $\pm$ 17.80, respectively, and it was statistically significant. Number of Goblet cells of group A, B, C, D was 2.4 $\pm$ 1.4, 8.3 $\pm$ 1.5, 8.9 $\pm$ 2.3, 10.4 $\pm$ 4.0, respectively, and it was statistically significant.

Conclusion: *Spirulina* 500 mg decreases TNF α levels and increases number of Goblet cells.

Keywords: *Spirulina maxima*, TNF- α , Goblet cells

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