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Effects of *Spirulina platensis* supplementation on serum lipoprotein (a), apolipoprotein A1 and apolipoprotein B levels in rats fed hydrogenated vegetable oil and/or cholesterol

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Background: Anti-obesity foods and food ingredients are effective in reducing the accumulation of fat in the body and can prevent diseases associated with lifestyle. One of them is *Spirulina platensis* (*Spirulina*), a blue green algae/cyanobacterium.

Aim: To investigate whether *Spirulina* has the improve effects on serum lipoprotein (a), apolipoprotein A1 and apolipoprotein B levels in rats fed hydrogenated vegetable oil (HVO) and/or cholesterol.

Methods: 64 male-mature rats were separated into 8 equal groups. Control group was fed a standard semi-purified diet. Supplementations of other groups fed same semi-purified diet were as follows: Trial 1, 43% HVO; Trial 2, 10% cholesterol; Trial 3, 43% HVO+10% cholesterol; Trial 4, 3% *Spirulina*; Trial 5, 43% HVO+3% *Spirulina*; Trial 6, 10% cholesterol+3% *Spirulina* and Trial 7, 43% HVO+10% cholesterol+3% *Spirulina*. Bloods were taken from all rats on Days 30 and 60.

Results: Serum lipoprotein (a) was significantly lower in Trials 3 and 4 than in Control and Trial 6 on Day 60. Serum apolipoprotein A1 was higher in Trial 6 than in Trials 1, 2 and 3 on Day 30, although it was higher in Trials 3 and 4 than in Trial 1 on Day 60. Serum apolipoprotein B was higher in Control and Trials 3, 4, 6 and 7 than in Trials 1, 2 and 5 on Day 30, although it was higher in Control and Trials 3, 5 and 7 than in Trial 6 on Day 60.

Conclusion: All levels were within normal ranges. *Spirulina* added to feed significantly decreased serum lipoprotein (a) levels compared to the control group, whereas *Spirulina*+HVO or cholesterol did not show a significant lowering effect upon serum lipoprotein (a) levels. Moreover, the improve effect of *Spirulina* upon serum apolipoprotein A1 and B levels was not observed. The rate of *Spirulina* used in this study may not be sufficient. The study should be repeated by increasing the rate of *Spirulina*.

Biography

Aysen Altiner has completed her PhD from Istanbul University, Turkey. She is a Lecturer in the Department of Biochemistry. She has published more than 40 papers in various journals.

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