Effects of *Monascus* Rice Powder Co-Supplemented with Coenzyme Q_{10} Improve Serum Lipids and Lipid Oxidative Status on Hypercholesterolemia Subjects

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***Aim*:** A clinical trial was conducted to investigate lipid-lowering and antioxidative effects of combined red yeast rice extract and coenzyme Q_{10} (CoQ_{10}) supplementation on hypercholesterolemia subjects.

***Methods*:** Thirty-seven subjects were recruited and were randomly divided into three groups such as *Monascus* rice powder 500 mg (M), equivalent to monacolins 12 mg; *Monascus* rice powder 500 mg plus CoQ_{10} 30 mg (MQ), and *Monascus* rice powder 1 g plus CoQ_{10} 60 mg (HMQ) by different doses supplementation. The supplementations administrated for 6 weeks, blood samples were collected every two weeks for cholesterol and low density lipoprotein lag time, and TBARS determination.

***Results*:** Results showed that the subjects had lower serum total cholesterol, LDL cholesterol, and apolipoprotein B concentration after 6 weeks of supplementation. In LDL-lag time, the data displayed a significant slower production of conjugated dienes in all groups after six weeks of supplementation. However, in CoQ_{10} supplementing groups, the effect sustained after ceasing supplementation for two weeks.

***Conclusion*:** The results confirmed the lipid-lowering effects of monacolins by inhibiting HMG CoA reductase and decreasing the concentration apolipoprotein B. Furthermore, addition of at least 30 mg CoQ_{10} could significantly enhance LDL antioxidative capacity in hypercholesterolemia subjects.

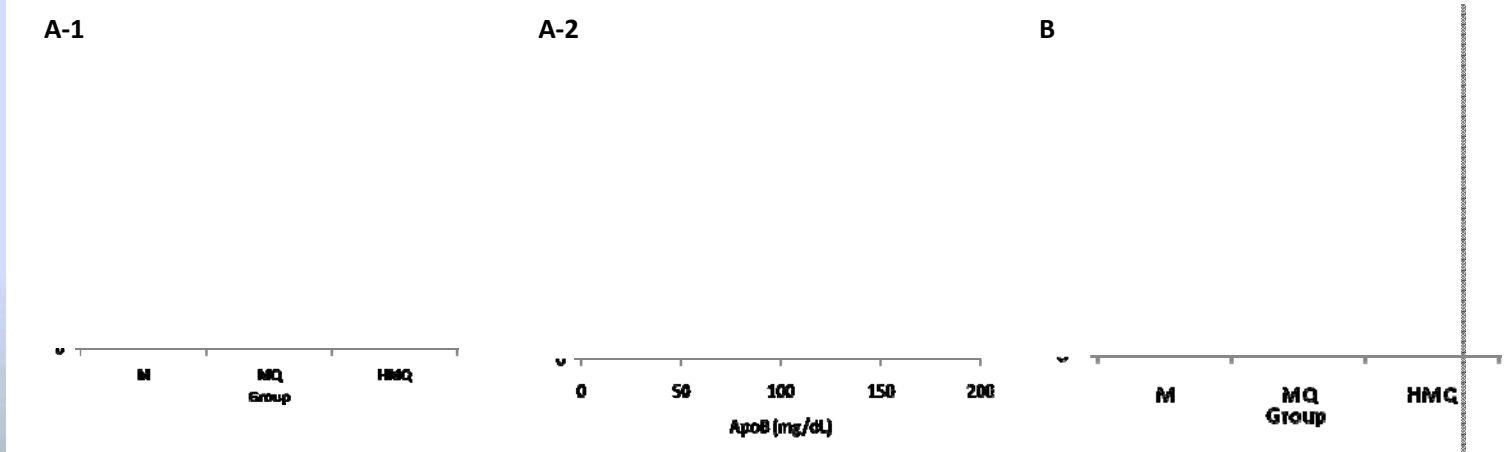

Figure (A-1 & A-2) Serum Apo B levels & regression relationship between apo B and LDL-C
Figure (B) LDL Lagtime of different groups on 0-8 weeks on hypercholesterolemia subjects.
Values are mean ± SEM. ' a, b ' *indicates a significant difference between different months. ($p< 0.05$) *indicated significant differences within groups ($p< 0.05$).* Apo B, apolipoprotein B; LDL-C, low-density lipoprotein cholesterol.