



## The effect of dietary yeast cell wall (*Saccharomyces cerevisiae*) and cinnamon essential oil (*Cinnamomum verum*) supplementation on growth indices, blood biochemistry and innate immunity of rainbow trout (*Oncorhynchus mykiss*) fingerlings

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### Abstract:

The effect of dietary yeast cell wall (*Saccharomyces cerevisiae*) and cinnamon essential oil (*Cinnamomum verum*) supplementation on growth indices, serum biochemical parameters and immunity of rainbow trout fingerlings was evaluated. Using a 2×2 factorial experiment, 276 fingerlings (9.67±1.20 g) were fed four experimental diets (including control diet, diet supplemented with 1.5% yeast cell wall or 1% cinnamon essential oil, and a diet containing 1.5% yeast cell wall and 1% cinnamon essential oil) for 60-days. Results indicated that the specific growth rate and weight gain significantly decreased in fish fed diet supplemented with 1% cinnamon essential oil ( $p \leq 0.05$ ), but feed conversion ratio didn't differ among treatments ( $p > 0.05$ ). Fish fed diets containing 1% cinnamon essential oil had the highest hepatosomatic index ( $p \leq 0.05$ ). The highest RBC count and blood hemoglobin content belonged to group fed diet containing 1% cinnamon essential oil ( $p \leq 0.05$ ). Simultaneous feeding with yeast cell wall and cinnamon essential oil significantly resulted in higher hematocrit value. Serum alkaline phosphatase activity was significantly increased in group fed diet containing 1.5% yeast cell wall. Dietary cinnamon essential oil supplementation also resulted in lower alkaline phosphatase, aspartate aminotransferase and gamma glutamyltransferase activity of serum ( $p \leq 0.05$ ). The highest serum total protein and globulin content and lysozyme activity were observed in fish fed diet only supplemented with yeast cell wall ( $p \leq 0.05$ ). In conclusion, dietary cinnamon essential oil and yeast cell wall inclusion resulted in improved immunity of rainbow trout fingerlings.

**Keywords:** Yeast cell wall, Cinnamon essential oil, Serum biochemistry, Immunity, Rainbow trout.