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Adjuvant efficacy of G2 (buffalo spleen extraction) against *Yersinia* septicemia in rainbow trout (*Onchorhynchus mykiss*)

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**Running title:** Efficacy of G2 adjuvant in vaccinated trout with *Y. ruckeri* vaccine

## **Adjuvant efficacy of G2 (buffalo spleen extraction) against *Yersinia* septicemia in rainbow trout (*Onchorhynchus mykiss*)**

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### **Abstract:**

Adjuvant effect of G2 (extraction of buffalo spleen) was assessed in intraperitoneally immunized rainbow trout (100-150 g) with killed- *Y. ruckeri* bacterin biotype I [0.1 ml ( $1 \times 10^7$  cells/fish) of vaccine diluted with the adjuvant in a ratio of 1:1 (V/V)] at  $12.4 \pm 1.3^\circ\text{C}$  for 10 weeks. Leucocyte and lymphocyte counts, anti-*Y. ruckeri* antibody titer and relative percent survival (RPS) in fish vaccinated with vaccine containing the adjuvant were significantly higher than the immunized fish with *Y. ruckeri* antigen alone throughout the experiment ( $P < 0.05$ ), but neutrophils count and lysozyme activity were mostly significantly higher in the latter group ( $P < 0.05$ ). No difference was seen in the complement activity between vaccinated fish containing the adjuvant and vaccine alone ( $P > 0.05$ ). The results of this work for the first time demonstrated that inclusion of G2 as an adjuvant in *Y. ruckeri* vaccine can improve the efficacy of the vaccine against *Yersinia* septicemia in rainbow trout.

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