

In the present study, the differential blood counts of the fish fed with different immunostimulant mixed feeds under normal and *Aeromonas* infected conditions were performed by counting the blood cells including eosinophils, basophils, neutrophils, lymphocytes, and monocytes. The results of differential counts demonstrated that the average eosinophil, basophil, and neutrophil count in healthy fish treated with different immunostimulant-supplemented feeds ranged from 357 ± 53.07 to 475 ± 45.76 cells/mm³, 38 ± 9 to 48 ± 9 cells/mm³, and 2650 ± 0.525 to 3340 ± 0.49 cells/mm³ respectively.

Whereas, in *Aeromonas* infected fish, eosinophil, basophil, and neutrophil count with different immunostimulant mixed feeds varied between 369 ± 50.21 to 543.66 ± 52.51 cells/mm³, 34 ± 6.5 to 42.6 ± 6.02 cells/mm³, and 5060 ± 0.89 and 7570 ± 0.62 cells/mm³ respectively. The results of eosinophil counts indicated that the tested immunostimulants significantly increased eosinophil count in both healthy and *Aeromonas* infected fish when compared to the control. While, the results of basophil counts indicated that the tested immunostimulants don't exhibit a significant impact on the basophil count in both healthy and *Aeromonas* infected fish when compared to the control.

Furthermore, the results of neutrophil counts demonstrated that the tested immunostimulants significantly decrease the neutrophils content in both healthy and *Aeromonas* infected fish when compared to the control. The results of mean lymphocyte count in healthy fish that treated with different immunostimulant mixed feeds ranged from 2531 ± 0.79 to 3072 ± 0.99 cells/mm³. Whereas, in *Aeromonas*-infected fish, the lymphocyte counts varied between 2290 ± 1.095 and 2740 ± 1.270 cells/mm³ with the use of different immunostimulant mixed feeds. While, the mean monocyte counts in healthy fish treated with various immunostimulant mixed feeds ranged from 178 ± 0.64 to 370 ± 0.51 cells/mm³. Whereas, in *Aeromonas*-infected fish, the monocyte counts varied between 462 ± 0.56 and 685 ± 0.77 cells/mm³ with the use of different immunostimulant mixed feeds. These results of lymphocyte and monocyte counts indicated that the tested immunostimulants had a substantial effect on increasing the number of lymphocytes and decreasing number of neutrophils in both healthy and *Aeromonas* infected fish, as compared to the control group.

The current findings are consistent with the prior research conducted by Selvaraj et al. (2005) which demonstrated that intraperitoneal administration of β -glucan led to a considerable rise in the number of peripheral neutrophils and monocytes in a manner that appeared to be dependent on the dosage. Additionally, Chin and Woo (2005) found that Atlantic salmon had lymphocytes comprising 66.4~75.1% of their blood cells, granulocytes making up 1.6~3.6%, monocytes accounting for 0.19~1.1%, and thrombocytes constituting 20.1~31.9%. Hardie et al. (1991) observed that lymphocytes accounted for 68.0~80.3% of the total count, thrombocytes accounted for 16.8~23.3%, neutrophils accounted for 2.0~7.5%, and monocytes accounted for 1.0~2.8%. Hardie et al. (1991) reported that the percentage of lymphocytes ranged from 59.7% to 65.9%, thrombocytes ranged from 30.3% to 39.1%, neutrophils ranged from 2.1% to 2.6%, and monocytes ranged from 0.9% to 1.4%.

Contrary to the current study, Wojtaszek et al. (2002) found that administering cortisol resulted in a decrease in the number of circulating lymphocytes and eosinophils, but the number of neutrophils increased. Narnaware and Baker (1996) observed a decrease in lymphocytes and thrombocytes in the bloodstream, along with an increase in neutrophils and monocytes, in rainbow trout under stress. Ellsaesser and Clem (1987) discovered a decrease in lymphocyte count that was associated with an increase in neutrophils following the administration of physiological quantities of cortisol to channel catfish. While comparing the current data to earlier reports, it is evident that there is a relatively large number of lymphocytes, but the fraction of neutrophils is lower than the expected range. The change in the erythrocyte sedimentation rate has been attributed to components present in both the plasma and red blood cells (Al-Homrany, 2002). An elevated ESR level signifies a rise in the formation of erythrocyte rouleaux, which can be harmful to red blood cells as they pass through the microcirculation (Qian et al., 2002).

In the present study, the mean ESR values in healthy fish treated with different immunostimulant mixed feeds ranged from 0.27 ± 0.13 to 0.39 ± 0.17 cm/hour. Whereas, in *Aeromonas*-infected fish, the ESR with various immunostimulant mixed feeds ranges from 0.33 ± 0.111 to 0.45 ± 0.14 cm/hour. The results indicated that the