

The mean total WBC count in healthy fish fed with immunostimulant mixed feed such as control, vitamin C, vitamin E, chitin, chitosan, and levamisole was found to be 4077 ± 0.93 , 6855 ± 0.861 , 7535 ± 1.07 , 6613 ± 0.74 , 6322 ± 0.84 , and 7248 ± 0.82 cells/mm³ respectively. As well as, the mean total WBC count in *Aeromonas* infected fish fed with immunostimulant mixed feed such as control, vitamin C, vitamin E, chitin, chitosan, and levamisole were found to be 4342 ± 0.87 , 7130 ± 0.43 , 7757 ± 1.06 , 6849 ± 1.12 , 6435 ± 0.92 , and $7373 \pm 0.95 \times 10^3/\text{mm}^3$ respectively.

The total WBC count significantly varies between healthy and *Aeromonas* infected fish from all the treatment groups. The *p* - values for the total WBC count content between healthy and *Aeromonas* infected fish in the treatment groups of control, vitamin C, vitamin E, chitin, chitosan, and levamisole were measured as 0.0228, 0.134, 0.063, 0.034, 0.195, and 0.156 respectively. These results demonstrated that the chitin mixed feed significantly increased the total WBC count content in both healthy and *Aeromonas* infected fish when compared to the control control-fed group.

3.6 Differential leucocyte count

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.

3.6.1 Eosinophils

The Table 24 shows the mean eosinophil count of healthy and *Aeromonas* infected *Catla catla* fish that were treated with different immunostimulant mixed feeds. According to these results, it was observed that the average eosinophil count in all test groups varied significantly. The average eosinophil count in healthy fish treated with different immunostimulant-supplemented feeds ranged from 357 ± 53.07 to 475 ± 45.76 cells/mm³. In *Aeromonas* infected fish, eosinophil count with different immunostimulant mixed feeds typically ranges from 369 ± 50.21 to 543.66 ± 52.51 cells/mm³.

Table 24 Eosinophil count in the fish fed with different immunostimulant mixed feeds under normal and *Aeromonas hydrophila* infected conditions

S. No.	Experimental feed	Eosinophils (cells/mm ³)		F- value	p- value
		Healthy fish	<i>Aeromonas</i> infected fish		
1	Control feed	475 ± 45.76	543.66 ± 52.51	2.86	0.166 ^{NS}
2	Vitamin C mixed feed	412 ± 49.31	408 ± 44.65	0.01	0.925 ^{NS}
3	Vitamin E mixed feed	357 ± 53.07	369 ± 50.21	0.09	0.779 ^{NS}
4	Chitin mixed feed	417 ± 53.02	454 ± 52.003	0.77	0.421 ^{NS}
5	Chitosan mixed feed	430 ± 47.12	466 ± 46.36	0.91	0.394 ^{NS}
6	Levamisole mixed feed	358 ± 41.06	393 ± 67.002	0.61	0.47 ^{NS}

p-value* = Significant, *p*-value** = highly significant, *p*-value*** = extremely significant, *p*-value^{NS} = Not Significant

The mean eosinophil count in healthy fish fed with immunostimulant mixed feeds such as control, vitamin C, vitamin E, chitin, chitosan, and levamisole was found to be 475 ± 45.76 , 412 ± 49.31 , 357 ± 53.07 , 417 ± 53.02 , 430 ± 47.12 , and 358 ± 41.06 cells/mm³ respectively. As well as, the mean eosinophil count in *Aeromonas* infected fish fed with immunostimulant mixed feed such as control, vitamin C, vitamin E, chitin, chitosan, and levamisole was found to be 543.66 ± 52.51 , 408 ± 44.65 , 369 ± 50.21 , 454 ± 52.003 , 466 ± 46.36 , and 393 ± 67.002 cells/mm³ respectively. The number of eosinophils significantly varies between healthy and *Aeromonas* infected fish from all the treatment groups.

The *p* - values for the eosinophil count healthy and *Aeromonas* infected fish in the treatment groups of control, vitamin C, vitamin E, chitin, chitosan, and levamisole were measured as 0.166, 0.925, 0.779, 0.421, 0.394, and 0.47 respectively. These results demonstrated that the tested immunostimulants decreased eosinophil count but not significantly in both healthy and *Aeromonas* infected fish when compared to the control control-fed group.