

## EFFECT OF DIETARY INCLUSION OF STINGING NETTLE (*URTICA PARVIFLORA*) ON GROWTH AND IMMUNOLOGICAL RESPONSES OF RAINBOW TROUT FRY

SURAJ K. SINGH<sup>1</sup>, DILIP K. JHA<sup>2\*</sup>, NARAYAN PRASAD PANDIT<sup>2</sup>, NEETA PRADHAN<sup>3</sup> and PREM TIMALSINA<sup>3</sup>

<sup>1</sup>Rainbow Trout Fisheries Research Station, Dhunche, Rasuwa (Nepal)

<sup>2</sup>Agriculture and Forestry University, Rampur, Chitwan (Nepal)

<sup>3</sup>Fisheries Research Division, Godawari, Lalitpur (Nepal)

**ABSTRACT :** A study was conducted in complete randomized design (CRD) to evaluate the dietary inclusion rate of Stinging nettle (*Urtica parviflora*) on growth and immune responses of rainbow trout fry. There were four treatments having 4 diets with control (T1), 1% (T2), 2% (T3) and 3% (T4) of stinging nettle incorporated in the diet. The treatments were replicated four times. The experiment was conducted for 90<sup>th</sup> days from 20<sup>th</sup> June-17<sup>th</sup> September, 2018. Total harvest weight of fish in T4 (315.95±8.11 g) was significantly higher and different than T3 (291.3±1.98 g), T2 (282.4±0.92 g) and T1 (260.05±5.72 g). The highest specific growth rate (SGR) was seen in treatment T4 (1.77 ±0.04) which was not significantly different with T3 (1.71±0.016) but was significantly different with T2 (1.65 ±0.034) and T1 (1.52±0.037). The lowest food conversion ratio (FCR) was seen in T4 (2.38±0.07) which was not significantly different with T3 (2.56±0.03) but was significantly different than T2 (2.72±0.08) and T1 (2.99± 0.02). Similarly, the highest protein efficiency ratio (PER) was seen in treatment T4 (0.94±0.05) which was not significantly different with T3 (0.87± 0.018) but was significantly different than T2 (0.82±0.04) and T1 (0.74±0.007). After 90<sup>th</sup> days of culture period the cortisol level (mg/ml) were lower in the group fed with 3% of the plant additives. The treatment T4 (0.17±0.01) had significantly lower level of cortisol with T3 (0.295±0.04), T2 (0.38±0.04) and T1 (0.935±0.04). The red blood cell (RBC) counts (10<sup>6</sup> cells/ml) in T4 (1.94±0.2) was significantly higher than T3 (1.51±0.1), T2 (1.1±0.1) and T1 (1.02± 0.3). Similarly, white blood cell (WBC) count (10<sup>3</sup> cells/ml) was also significantly higher in T4 (12.55±0.2) than T3 (12.11± 0.2), T2 (11.54±0.1) and T1 (10.71±0.3). No significant changes were observed in water temperature (°C), dissolved oxygen (mg/l) and pH under different treatments. The present findings demonstrated that dietary inclusion of stinging nettle enhanced growth, lower cortisol level and increase RBC and WBC count of the fish; thus stimulating the immunity and lower the stress level.

**Key words :** *Urtica parviflora*, Total harvest weight, FCR, SGR, PER, Cortisol, RBC, WBC.