SUMMARY:

The freshwater teleost fish, *Notopterus notopterus* is selected for the present study as this fish is available in large numbers in the aquatic bodies in and around Kalaburagi and are common in the aquatic bodies throughout the year. The fish flourish well in aquatic bodies of Kalaburagi and found abundantly in the region. The successful survival of this species depends on the favorable environmental conditions necessary for growth and breeding activities in the aquatic bodies of Kalaburagi.

Stress is a general and non-specific response to any factor disturbing homeostasis. Stress reaction involves various physiological changes including alteration in blood composition and immune mechanism.

In the present study an attempt was made to know the biochemical and histopathological impact of profenofos on the tissues of the fresh water fish *N. notopterus*. Organophosphorous Profenofos (Curacron) 50% EC which is commercially known as ‘Curacron’ is a neurotoxic pesticide. The present study was on the acute (24 and 96 hours) and chronic (7, 14, 21, 30, 45 and 90 days) impact of profenofos (Curacron) 50% EC on the fresh water teleost fish *Notopterus notopterus*. The acute impact was assessed by taking lethal and sub lethal concentrations, whereas, chronic impact was assessed by taking only sub-lethal concentration (1/10th of LC\textsubscript{50}) of Profenofos (Curacron) 50% EC. The fish chosen as the test organism is the most common fish available in and around Kalaburagi throughout the year.

The behavioral response of the fish varied in accordance with the test concentration. Restlessness, changed body color and unusual amount of mucus over the surface of the body were witnessed. Some of them tried to jump out of the container initially, and lost activity gradually before they died.
The mortality of fish occurred gradually with the course of time in each concentration of Profenofos (Curacron) 50% EC, thus signifying that the pesticide had not either considerably degraded with time or the degradation products themselves were toxic.

**Impact on Biochemical and Haematological Parameters:**

Profenofos (Curacron) 50% EC showed significant changes in biochemical contents of the fish of *N. notopterus*. There was a decrease in tissue protein and DNA throughout the exposure, whereas, tissue glucose and cholesterol was observed to vary in the toxic environmental pressure due to the effects of different concentrations of Profenofos (Curacron) 50% EC.

The freshwater fish *N. notopterus* was exposed to Profenofos (Curacron) to evaluate its impact on haematological parameters. The experiment reveals that there was a decrease in total RBC count, Haemoglobin content and an increase in WBC number in all the experimental animals. The significance of these observations was discussed in the light of literature.

Blood biochemical parameter shows increased level of blood glucose, blood urea, serum uric acid, serum potassium, serum triglycerides, whereas, decreased pattern was observed in total cholesterol, serum alkaline phosphate, SGOT, SGPT values. The significance of these changes was discussed with reference to various physiological factors. The fluctuations observed in the above parameters were due to the variation in the concentration of the toxicant as well as the duration of exposure.
**Histopathological impact**

Renal excretion is one of the ways of eliminating the non-detoxified toxicant molecule resulting in severe pathological changes in haemopoietic tissue, severe necrosis, cloudy swelling of renal tubules, disintegration of interstitial tissue, pycnotic nucleic etc in kidney. On the whole the effect of Profenofos curacron 50% EC was more prominent.

The impact of Profenofos (Curacron) 50% EC was evident on the histopathological conditions of kidney and gonads. The normal architecture of kidney and gonad tissue was completely altered. The arrangement of cellular striates, cell necrosis, pycnotic nucleus, haemorrhage and appearance of vacuoles were some of the important features observed after pesticide treatment. The significance of such changes was discussed in the light of literature.