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**Comparative Study of Bisphenol-A and its Analogue Bisphenol-S on Growth and Condition Factor of Juvenile Zebrafish (*Danio rerio*)**

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**Abstract**

Bisphenol-A is a synthetic estrogen highly used in the production of polycarbonate plastics and epoxy resins in plastic industry world-wide. Bisphenol-A presents as a ubiquitous environmental contaminant in all ecosystems. Bisphenol-A is an endocrine disruptor which affects the growth, development and physiology of living organisms. Therefore, bisphenol-S has been introduced as a safe alternative to bisphenol-A and it has become the widely used bisphenol-A substitute. Bisphenol-S has also been identified as an endocrine disruptor and emerging environmental contaminant. Therefore the safety of bisphenol-S substitution has become questionable. Thus, this study was carried out to comparatively assess the impacts of bisphenol-A and bisphenol-S exposure on growth and condition factor of zebrafish (*Danio rerio*). After 7-days acclimatization period, twenty juvenile zebrafish of 67 dpf (days post fertilization) of age were treated 35 days with 10 µg/L and 100 µg/L of bisphenol-A, bisphenol-S and with treatment control in triplicate tanks. Mean body length, weight, specific growth rate and condition factor of fish were evaluated. Mean body weight increment of zebrafish under 100 µg/L of bisphenol-S and bisphenol-A were significantly different from the treatment control ( $p < 0.05$ , One way ANOVA, Tukeys pairwise Comparison). The mean body length increment and specific growth rate were not significant under both concentrations of bisphenol-S and bisphenol-A with treatment control ( $p > 0.05$ ). However, the condition factor of fish under both concentrations of bisphenols were significantly less than control ( $p < 0.05$ ). The condition factor of fish under comparable concentrations of bisphenol-S and bisphenol-A were not statistically significant. Therefore, it can be concluded that exposure to environmental concentrations of both types of bisphenols could affect the wellbeing of juvenile zebrafish. Based on the findings, bisphenol-S cannot be recommended as a safe substitution to bisphenol-A. Yet, more comprehensive studies are recommended to evaluate relative effect of bisphenol-S on freshwater ecosystem health.

**Keywords:** Body length, Body weight, Condition factor, Bisphenol-A, Bisphenol-S, Zebrafish, (*Danio rerio*)