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Evaluation of Glyphosate Toxicity Using *Artemia salina* as an Invertebrate Model

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Abstract

Glyphosate, the active ingredient in numerous commercial herbicides, is widely used globally, raising concerns about its potential impact on aquatic ecosystems. This study evaluated the acute toxicity of glyphosate using *Artemia salina* (brine shrimp), a widely recognized invertebrate bioassay model for Eco toxicological studies. Brine shrimp nauplii (Instar I) were exposed to a series of glyphosate concentrations (50, 75 and, 100 ppm) prepared in artificial seawater, and mortality was assessed at 24 and 48 hours. Results revealed a clear dose-dependent increase in mortality, with estimated LC_{50} values of 31 ppm at 24 hours and 54 ppm at 48 hours, indicating time-dependent toxicity. While variations in toxicity levels may reflect experimental conditions such as artificial seawater use, the findings are consistent with previous reports of glyphosate's harmful effects on aquatic invertebrates. Given the ecological importance of *A. salina* and its role as a model organism, these results highlight potential biodiversity risks associated with glyphosate contamination, including disruption of aquatic food webs and implications for higher trophic levels. Further research is recommended to investigate chronic toxicity, environmentally relevant concentrations, and long-term ecological consequences of glyphosate exposure.

Keywords: *Glyphosate, Brine shrimps, LC_{50} value, Mortality, Aquatic food chain*