



## Effect of Herbicide (Glyphosate) upon the fecundity and moulting of a terrestrial isopod (*Philoscia javanensis*) under lab condition

B. Bini and M. G. Sanal Kumar

P.G. & Research Department of Zoology, N.S.S. College, Pandalam, Kerala, India -689 501

Email: [binirohini@gmail.com](mailto:binirohini@gmail.com)

### Abstract

*Soil isopods plays critical role to increase soil fertility. Indiscriminate use of Herbicides on agricultural purposes resulted deleterious effects on the biology and species diversity of soil arthropods. The effect of sublethal concentration of a herbicide glyphosate (N-(Phosphonomethyl)glycine), were treated to find out the fecundity and maturation of an edaphic isopod (Philoscia javanensis). The LC 50 and LC 100 values of Philoscia javanensis were calculated. The safe and sublethal concentrations of Glyphosate were very low indicating high vulnerability of these isopods to agrochemicals. The safe level concentration of Glyphosate was 0.6341ppm. The moulting intervals of P.javanensis showed variation between herbicide treated and normal P.javanensis. Herbicide treated P. javanensis showed drastic reduction in fecundity and also their moulting intervals were prolonged.*

**Key words:** Glyphosate, Herbicide, Isopod, *Philoscia javanensis*, Moulting interval and Fecundity.

### References

1. APHA, 2012, Standard methods for the examination of water and waste water, American Public Health Association, 22<sup>nd</sup> ed. Washington D C.948pp.
2. Conway, G. R., 1984, Strategic Models, in G R Conway (Ed) Pest and Pathogen Control: Strategic, Tactical and Policy Models, International Series on Applied Systems Analysis, John Wiley and Sons
3. Finney, D.J., 1980, *Statistics for Biologist*. Chapman and Hall, London
4. Green, C.D., 1964, The life history and fecundity of *Folsomia candida* (Willem) var. distinct (Bagnall) (Collembola: Isotomidae), *Proc. R. Ent. Soc. London (A)*, 39:125-128.
5. Hart, W.P., Patrik, R. and Strong, E.R. 1945, Bioassay method for the evaluation of acute toxicity of industrial wastes to fish. *Sewage and industrial wastes*, 23:1380-1397.
6. Hartenstein, R. 1962, Soil Oribatei-I. Feeding specificity among forest soil Oribatei (Acarina). *Ann. Entomol. Soc. Am.*, 55: 202-206.
7. Piola, L., Fuchs, J., Oneto, M.L., Basack, S., Kesten, E., Casabé, N., 2013, Comparative toxicity of two glyphosate-based formulations to *Eisenia andrei* under laboratory conditions. *Chemosphere* 91, 545–551.
8. Ponge, J.F., Peres, G., Guernion, M., Ruiz-Camacho, N., Cortet, J., Pernin, C., et al., 2013, The impact of agricultural practices on soil biota: a regional study, *Soil Biol. Biochem.* 6, 271–284.
9. Paredes, S.H, Lebeis S.L., 2016, Giving back to the community: microbial mechanisms of plant-soil interactions, *Functional Ecology* 30, 1043-1052.