Секция «Экология растений»

The phytotoxicity of shampoo-seeds surface interactions tested by Vigna radiata vs. Lens culinaris

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Ginger Polygonum Multiflorum Nutrient Shampoo (GPMNS) contains ginger extract, surfactants, chemical cleansers, and other herbal extracts. As a medicinal shampoo, rarely has the ecotoxicity been reported. In the study, two types of terrestrial vascular plant seeds, e.g., *Vigna radiata* and *Lens culinaris*, were employed to test the phytotoxicity of GPMNS. Seed phytotesting protocol requires deionized water to prepare test solutions. The raw shampoo liquid was diluted at various percent concentrations (i.e., 0.1%, 0.5%, 1.0% and 5.0%). 0.0% solution was used as blank control with addition of deionized water only. The exposure of either *Vigna radiata* or *Lens culinaris* seeds to the different concentrations was kept for 120 h, at each of which the number of germinated seeds was counted and the root lengths were measured. In terms of *Vigna radiata*, the percent germination of seed (PGS, ca. 10%-100%) and the root length (RL, ca. 0.5-70 mm) decreased significantly at an increase in the shampoo concentration (0.0%, 0.1%, 0.5%, 1.0% and 5.0%) after 120 h of static exposure. Likewise, PGS (ca. 0%-97%) and RL (ca. 0-22 mm) of *Lens culinaris* were both on the decline, whereas the test concentrations (0.0%, 0.1%, 0.5%, 1.0% and 5.0%) were on the increase. The results of the phytotoxicity tests were reproducible in triplicate. The seed tests showed that the phytotoxicity was a concentration-dependent response to the shampoo. Compared to *Lens culinaris*, *Vigna radiata* seeds were more responsive to the shampoo toxicity. The drawback for seed toxicity tests is that plant seeds appear to be less sensitive than other bioassay organisms; however, their simplicity and accuracy should not be overlooked.

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