

# Earthworms as Engineers of Soil and Human Health

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**Abstract**—Fungi are active degrading initiators of organic matter in soils as many substrates are first populated by sugar fungi e.g., Mucorales. Vermicomposting is now well known and is generally a good organic fertilizer majorly populated by bacteria i.e., nitrogen fixers, sulphur bacteria and phosphate solubilizers. The use of vermicompost in introducing these components into the soil leads to improvement of soil health thereby yielding nutritious food which consequently contributes to human health. A number of organic foliar sprays constitute of components similar to plant growth promoter substances. For example, vermiwash is a good liquid fertilizer proven to harbor plant growth promoting substances. Humification may be supported by vermiwash which also, by virtue of its quality may increase microbial actions to produce enzymes and compounds promoting plant growth. The compounds present in vermiwash may not independently foster plant growth but possibly promote plant growth along with beneficial soil microbes. These products are known to improve soil health and in presence of other products i.e., Gunapasela and Panchagavya can offer healthy nutrition from soil to plant. In recent times, insistent use of soil pollutants in forms of chemical fertilizers as against organic practices has negatively impacted surrounding soils, and in extreme cases surface and groundwater reserves. Lately, genetically modified substances (GMS) are used to nurse plants (with consequential impacts on the soil and invariably on human health) in contrast to, organic measures which nurses the soil (improving cluster of biotic elements and nutrients proportionately mixed) for uptake by plants, consequently leading to healthier soils and food produce beneficial for human health. For this reason, the paper highlights the efficacy of earthworms as a sustainable eco-friendly option constructively engineering soil and human health with minimal environmental and ecological impact.

**Index Terms**—*Earthworms, Vermicompost, Soil health, Human health, Genetically Modified Substances (GMS)*