

5th World Congress on **Sustainable Waste Management**

May 28-29, 2026 | Madrid, Spain

Impacts of acid catalyzed rice straw compost as partially complementary organic fertilizer for mineral fertilizer on physiochemical properties of some soils and crop yields**Seiam Hassan Abd El Ghany**

Agriculture Research Center- Giza- Egypt

The excessive use of chemical fertilizers has resulted in a decline in soil quality, crop yield, and crop quality. Also contribution of chemical fertilizers with organic fertilizers is a sustainable management that can alleviate these topics. However, a comprehensive studding in these fields remains unclear. In addition, the prevalent practice of indiscriminate and excessive application of mineral fertilizers has led to a decline in production efficiency, deterioration in crop quality, a reduction in fertilizer utilization rates, and an exacerbation of environmental pollution. First, organic fertilizers are rich in organic matter and can directly increase soil organic matter and soil nutrients through external organic matter inputs. Also, partial organic substitution can sustain the availability of soil nutrients via the gradual release of nutrients from organic fertilizers. Agriculture straw is considered a renewable resource that has the potential to contribute greatly to soil nutrient supplies. Rice straw is unique relative to other crop residues; it has limited use as an animal feed because of its high silica content. On the other hand the organic fertilizer which applied with soils must be save from weed, seeds,

insects, fungus and harmful worms such as nematode worms. To reduce composting time for straw or any biomass it must there is a suitable and sustainable method of straw pre-treatment cracks association in-between lignocellulose materials. In this study we used an organic fertilizer produced by newly method according to Abd El Ghany et., al 2018 which depend on using diluted sulfuric acid as catalyst in degradation of lignin layers, liberate nutritional elements and enhancing composting time in short period compared to traditional processing for compost preparation.

Biography

Dr. Seiam Hassan Abd El Ghany Seiam is an Associate Professor at the Soil, Water and Environment Research Institute, Agricultural Research Center, Giza, Egypt. He earned his B.Sc. in Chemistry from Cairo University in 1995, followed by an M.Sc. in Analytical Chemistry in 2004 and a Ph.D. in Analytical Chemistry in 2009 from the same university. With over 25 years of research experience (1997–2025), he has contributed extensively to soil, water, and environmental studies, including water quality projects in Jordan. He is also experienced in teaching and training on analytical techniques such as AAS, MS, HPLC, GC-MS, and instrument maintenance.