**Microbiological basis of soil carbon sequestration in Organic rice production in India**

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Abstract:

Soil microorganisms are key agents determining the fate of soil C and aid in its sequestration. The assessment of the impact of agri-management on the microbial activities related to C sequestration was undertaken using long term organic agricultural management in the rice-wheat rotation. The organic management included input of a combination of nutrient sources farm yard manure (FYM), vermicompost (VC) and biofertilizers (BF) in the rice -wheat rotation.

The treatment VC+CR+BF had significantly higher ergosterol, peroxidase, phenol oxidase, FDA hydrolase activity, β-glucosidase activity & Xylanase activity implying higher fungal populations that are active in the mineralization and subsequent loss of the soil C. while FYM+CR+BF had significantly higher, water-soluble phenolic content, SMBC, Melanin & Chitin content at 0-30 cm soil depth. A high degree of homology of these microbial metabolites with the SOM indicates superiority of this treatment with its potential to increase the soil labile C fraction.

**Key words:** Carbon sequestration, FYM, Rice , Soil organic Carbon , Vermicompost,

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Abstract Example

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The conference aims to stimulate and foster exchanges between scientists, rice growers and other stakeholders in the organic rice production and commercialization chain. These exchanges, focused on organic rice production in different regions throughout the world, will be organized to1) collect and assess practical knowledge and functions of current organic rice production systems,2) discover applied innovations and identify obstacles that hinder further development of the systems,3) analyze the impact of different types of organic rice production on food quality, health, and the environment,4) strengthen the international innovation network on sustainable rice production,and 5) explore the issues, levels, and consequences of a scale shift toward the mainstreaming of organic agriculture throughout the agri-food chain.

With regards to the background of the International Symposium on Organic Rice Production Systems, the 1st International Symposium on Organic Rice Production Systems was held in September 2012 by the Montpellier Center of the French National Agricultural Research Institute. Since 2000, the center has been conducting participatory research in collaboration with farmers, focusing on the promotion of organic rice in the Camargue region, which extends to the delta at the mouth of the Rhone River. The symposium was planned to make an international comparison of organic rice production systems based on the outputs of this research. This aim was shared among the participants, and the second was held in Milan, Italy in September 2015 in the framework of the International EXPO Feeding the Planet, Energy for Life. The third was held in Porto Alegre, Brazil in March 2018. The 4th International Symposium had been scheduled to be held in August-September 2021, but it was decided to postpone it due to the Covid 19 pandemic, various obstacles to participation from overseas.

Fig. 1. Relationship between X and Y.

**Key words:**double cropping, environment, soil, tillage, weed

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