

PHYTOLITH IN PADDY SOILS - MORPHOLOGICAL PROPERTIES, CHEMICAL COMPOSITION AND THEIR RELATION TO SOIL PHYSIO-CHEMICAL PROPERTIES

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Summary

Biogenic silica is an amorphous structure which is formed by precipitation of silicic acid in inter- and intracellular spaces of rice plant, and so-called phytolith. During the precipitation, organic matter as well as other mineral nutrients might be entrapped into the phytolith structure. When rice residues (straw and husks) are returned to the field (corporation or returned after burning), phytolith and its accompanied nutrient pool can also be recycled to the soil. This work based on physical- and chemical extractions (using heavy liquid and 1% Na₂CO₃) is an attempt to characterize phytolith morphology and its content in some selected paddy soils. The contents of phytolith found in the soil samples were up to 5 g Kg⁻¹, and phytolith particles contained various mineral nutrients e.g. Si, K, Ca, Mg... The obtained data also revealed that phytolith is an important part of the silicon cycle/flux in paddy soils, and its presence is affected by different soil physio-chemical properties such as Fe and Al contents, pH, electroconductivity, clay and organic matter.

Keywords: *Silicon, phytolith, nutrient, paddy soil.*