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## Controlling methane emissions in a vermicompost-applied maapag paddy soil during rice cultivation

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Vermicompost application is important for increasing rice productivity and minimizing methane (CH<sub>4</sub>) emissions in paddy soil. However, its effect on CH<sub>4</sub> emissions in the Philippines have not been thoroughly evaluated. This study aimed to assess the effect of vermicompost at rate of 2 tons ha<sup>-1</sup> applied alone or in combination with recommended rate of inorganic fertilizers (RRIF) at 80-40-60 N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O kg ha<sup>-1</sup> on CH<sub>4</sub> emission and productivity in a typical mono-rice Maapag clay in Northern Mindanao. The treatments included: Control (no fertilizer), full RRIF, vermicompost alone, ½ RRIF, ½ RRIF + vermicompost and RRIF + vermicompost. Rice productivity increased significantly with inorganic NPK fertilizer application and more with combined inorganic NPK and vermicompost. Methane emission rates, which were measured by closed-chamber method, increased significantly with vermicompost applications but the total CH<sub>4</sub> flux per grain yield did not significantly differ between inorganic NPK fertilization alone and inorganic fertilization + vermicompost. Similarly, total CH<sub>4</sub> flux per grain yield was the highest in the full recommended rate of inorganic fertilizers + vermicompost but did not significantly differ with ½ RRIF + vermicompost and 2 tons vermicompost alone treatments. Our findings revealed that vermicompost application can be an effective organic amendment to increase rice productivity without significantly increasing CH<sub>4</sub> emission, which is comparable to the CH<sub>4</sub> flux per grain yield of inorganic fertilization alone in a Philippine mono-rice cultivation systems.

### Biography

Nonilona P Daquiado has completed her MS in Soil Science at the University of the Philippines at Los Baños, College, Los Baños, Laguna, Philippines and her PhD in Soil Science at the University of Queensland, Brisbane, Queensland, Australia and is currently, a Professor of the Department of Soil Science, Central Mindanao University.

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