**Plant Parasitic Nematodes Associated with Rice (**Oryza sativa** L.) in Central Java**

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**Introduction**

Rice (**Oryza sativa** L.) is an important food crop in the world, being the staple food for more than half of the earth’s population(1), including in Indonesia. Various genera and species of nematodes have been reported from upland and paddy rice in many countries(1, 2), but the Indonesian nematofauna has not yet been well studied. Accurately identifying the phytonematodes and its damage is one of the most fundamental elements of pest management.

**Objectives**

The objectives of this project are to provide:

• A more comprehensive description of plant-parasitic nematode biodiversity from organic and conventional rice crops in three regencies of Central Java, based on the molecular, morphological and plant-pathological information,

• To analyze the effect of organic and conventional farming practices on nematode and soil microbial communities, and

• To compare metabarcoding with microscopic identification and sanger-based DNA barcoding.

**Methods & Preliminary Results**

A. Soil Sampling

Conventional rice field

Karanganom, Klaten Regency

Sukrejo, Sragen Regency

Imogiri, Bantul Regency

18 samples: 9 samples of organic rice (3 regions and 3 replicates each) and 9 samples of conventional rice (3 regions and 3 replicates each)

B. Microscopic identification plant-parasitic species

C. DNA Sanger Sequencing of PPN (D2D3 & 18s rDNA, COI mtDNA)

Analytical methods linking molecular and morphological data of plant-parasitic are explored. Well-known rice plant parasitic nematodes (e.g. *Hirschmanniella oryzae*) can be directly linked to existing barcodes. For other species, barcodes are, not yet available in GenBank. Hence, linking “traditional” identifications to useful barcodes is needed.

D. Microscopic identification nematodes, including free-living nematodes on family level (preliminary results)

The following nematode families have been found in organic and conventional fields: Alaidae, Aphelenchoidae, Cephalobidae, Criconematidae, Dolichodoridae, Dorylaimida, Hoplolaimidae, Meloidogyneidae, Mononchidae, Monhysteridae, Panagrolaimidae, Pratylenchidae, Tylenchidae. Cephalobidae, Hoplolaimidae, and Mononchidae have been identified only in organic fields.

E. Metabarcoding of nematode and microbial community (preliminary results)

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**References**


**Q: What next??**

A: Compare metabarcoding identification of PPN with traditional identification and sanger based DNA barcoding.