Green Biotechnology

R&D Project Title : Reduction of paddy CH_4 emissions through optimizing the rice-microbe system

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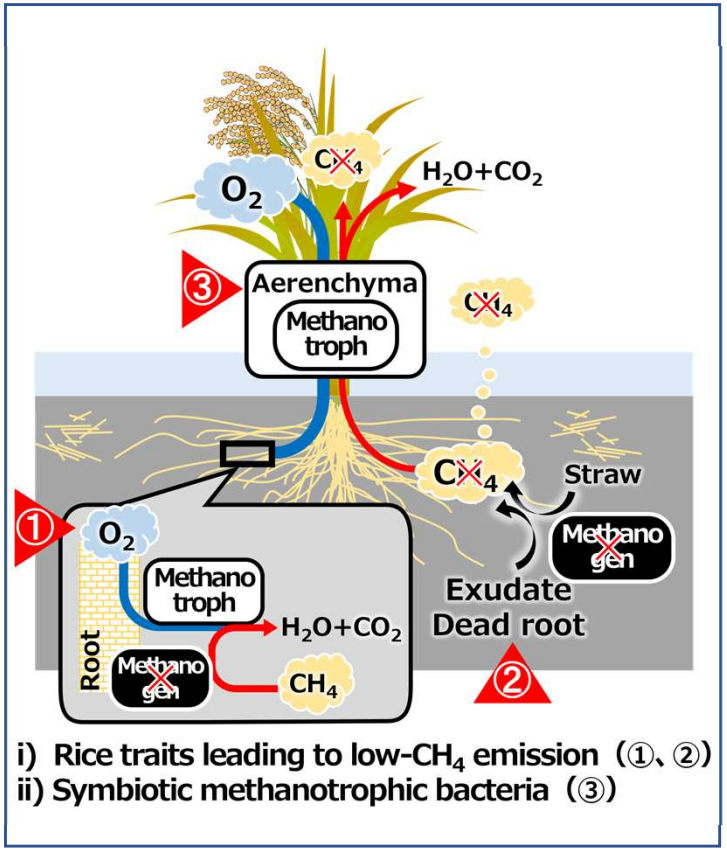
Summary :

The research aims to reduce CH_4 emissions from paddy rice farming without imposing additional burdens on producers. This goal is pursued by leveraging specific rice varieties and microorganisms. The study focuses on identifying rice traits associated with CH_4 metabolism, particularly those related to “root oxidation" and "substrate supply", with an ultimate objective of developing rice varieties that emit lower CH_4. Furthermore, the research investigates the symbiotic mechanisms of methanotrophic bacteria resting within rice, targeting the oxidation of CH_4 within the plant’s aerenchyma before emitting into the atmosphere. Recognizing the vast potential of paddy fields to significantly cut CH_4 emissions globally, this approach also aims to resonate with environmentally conscious consumers and provide tangible benefits to producers through green marketing and/or carbon crediting.



i) Rice traits leading to low-CH_4 emission (①、②)
ii) Symbiotic methanotrophic bacteria (③)