



Sheng ZHOU

GHG Emissions and Carbon Sequestration in Paddy Fields and Innovative Methane Mitigation Technologies

Food-system emissions account for about 30% of global greenhouse gas (GHG) emissions, particularly rice cultivation is the biggest source of methane (CH_4) in the food production sector. Nitrous oxide (N_2O) is another powerful GHG emitted from paddy fields due to nitrogen fertilizer application. Hence, CH_4 and N_2O emissions must be mitigated to reduce carbon emissions in rice production. On the other hand, soil carbon sequestration is considered a potential pathway to remove carbon dioxide (CO_2) from the atmosphere, which can offset part of GHG emissions and achieve the goal of carbon neutrality. It is essential to mitigate GHG emissions and increase soil organic carbon sequestration in paddy fields for retarding global warming and ensuring food security.

During the past decades, many studies have evaluated GHG emissions in paddy fields and developed a series of technologies to mitigate CH_4 and N_2O emissions and increase soil organic carbon sequestration in paddy fields. This presentation summarizes the results of GHG emissions and carbon sequestration potential under different managements of paddy fields based on long-term monitoring and further reports innovative methane emission mitigation technologies which are effective in CH_4 mitigation in paddy fields.
