

# Paper NEIKER

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## 1 Abstract

## 2 Introduction

In 2024 about 523.8 million metric tons of rice were consumed worldwide. Besides, over 50 percent of the world population depends on rice for about 80 percent of its food requirements. To meet this demand, a total of 200 million  $\text{km}^2$  are destined to cultivating rice in paddy fields, more than 10% of the cropland worldwide. This huge business has its downside, consuming large amounts of N-fertilizer and generating vast quantities of methane ( $\text{CH}_4$ ), a greenhouse gas with 30 times more warming potential than  $\text{CO}_2$ . For those reasons, understanding the biological processes produced in these environments, is a key requirement for maintaining the production of an essential food while reducing its environmental cost.

Rice paddy fields are a very interesting ecosystem, containing, in the rainy months, a layer of water that creates an oxygenation gradient, perfect for the development of a huge variety of microorganisms.

## 3 Methods

## 4 Results

## 5 Discussion

## 6 References