



Tropentag, September 15-17, 2021, hybrid conference

“Towards shifting paradigms in agriculture
for a healthy and sustainable future”

Determination of Heavy Metals in White Rice of Tarom Cultivar in First and Second Cultivation in Mazandaran Province, Iran

RAHIM SHAERI¹, NAGHMEH MOBARGHAE², HOUMAN LIAGHATI³

¹*Azad University Ayatollah Amoli of Amol, Agro technology, Science and Seed Technology, Iran*

²*Shahid Beheshti University, Environmental Planning, Iran*

³*Shahid Beheshti University, Environmental Sciences Research Institute, Iran*

Abstract

Rice is one of the most important foods in the diet of people around the world. Statistics show that China, with the production of about 146 million tons of rice in the 2019–2020 crop year, has the highest production of this food in the world, and India and Indonesia with 118 and 34 million tons, respectively are located, in the second and third place in the world. In Iran, in 2020, 2.6 million tons of white rice were produced in the country at the area of about 800,000 hectares. Heavy metals are one of the most dangerous contaminants for health and enter the human body through food. Irrigation with sewage, pesticide and fertiliser application are the most important factors in increasing heavy metals in the soil and food.

Mazandaran province, as the centre of rice cultivation in Iran has the first rank in rice cultivation in Iran. recent years, due to the economic attractiveness and the provision of the necessary infrastructure, the second cultivation of rice, in one year, has become common among farmers. Due to differences in climate and harvest time of the first and second types, there are differences in the quantity and quality of rice produced. In this study, the difference between the amount of heavy metals in these two types of cultivation has been investigated.

Samples were collected from local farms in Amol and Mahmoudabad during harvested period. All the heavy metals were determined by wet digestion method using a Flame Atomic Absorption Spectrophotometer based on international standard method of AOAC. The results show the increase of heavy metal in second cultivation. Therefore, food safety monitoring system for rice should be performed considerably.

Keywords: heavy metal, Food safety, Iran, Mazandaran, rice, second cultivation