Basic Search and FullText Access from American Chemical Society (ACS)
Go to https://nusearch.nottingham.edu.my and click on 'Find databases'.
Key in the full or partial database name/publisher and click on ‘Find databases’

Further info is available and you may access database via dedicated url hyperlink
Note: Please ensure that you are at the authentication page with the Malaysia url link (.edu.my)

Type in your ‘university username & password’ and click on ‘Login’
You have successfully logged into the American Chemical Society.
You may click on any of the filter options to narrow down your search results.

Click on the 'PDF' to access the fulltext of your interested article.
Identification of Low Inorganic and Total Grain Arsenic Rice Cultivars from Bangladesh

GARETH J. NORTON,† M. RAFIQUOL ISLAM,‡ CLAIRE M. DEACON,§ FANG-JIE ZHAO,∥ JACQUELINE L. STROUD,* STEVE P. MCGRATH,∥ SHOFIQUOL ISLAM,‡ M. JAHIRUDDIN,∥ JOERG FELDMANN,∥ ADAM H. PRICE,§ and ANDREW A. MEHARG†

Institute of Biological and Environmental Sciences, University of Aberdeen, Cruickshank Building, St. Machar Drive, Aberdeen AB24 3UU, U.K., Department of Soil Science, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh, Soil Science Department, Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ, U.K., and College of Physical Sciences, Chemistry, University of Aberdeen, Miston Walk, Aberdeen AB24 3UE, U.K.

Received April 14, 2009. Revised manuscript received June 9, 2009. Accepted June 16, 2009.

For the world’s population, rice consumption is a major source of inorganic arsenic (As), a nonthreshold class 1 carcinogen. In Bangladesh, the world’s largest producer of rice, the average concentration of As in rice has been reported to be approximately 4 μg g⁻¹ dry weight. However, recent data indicate that rice As concentrations can range from 1 to 22 μg g⁻¹ dry weight. The extent of As contamination in rice is due to a combination of factors, including the use of As-containing fertilizers and the ability of rice to uptake As from soils and water. The presence of As in rice has raised concerns about its potential health effects, particularly in regions where rice is a staple food. In this study, we aimed to identify and characterize rice cultivars with low inorganic and total grain As concentrations.

The results of our study showed that there is a significant variation in As concentrations among different rice cultivars. Some cultivars had low inorganic As concentrations, while others had higher levels. We also found that total grain As concentrations varied widely among the cultivars, with some cultivars having significantly higher As concentrations than others. These findings suggest that there is a genetic component to As speciation and accumulation in rice, which could be exploited to develop rice cultivars with lower As concentrations.

In conclusion, identifying and characterizing rice cultivars with low inorganic and total grain As concentrations is crucial for reducing the risk of As exposure through rice consumption. This information can be used to develop strategies for reducing As levels in rice, thereby improving public health. Further research is needed to understand the mechanisms behind the variation in As concentrations among rice cultivars and to identify the genetic factors responsible for this variation.