

Impact Assessment of Zeolite, Manure and Rubber Powder on Plant Growth

Zahra Beyrouti

Natural Resource MSc.,
Zenderud Research College
zahra_beyrouti@yahoo.com

Saeed Samani Majd

Environmental Engineering MSc.,
Zenderud Research College
samanisaeed@yahoo.com

Amir Masoud Samani Majd

Water and Environmental MSc.,
Zenderud Research College
a.m.samani@gmail.com

Majid Afyuni

Soil Science PhD,
IUT Faculty Member
afyuni@cc.iut.ac.ir

Abstract

Iran has a dry and semi-dry climate resulting water scarcity in most of its territory. More than 90% of water usage in Iran is assigned to agriculture. To increase the irrigation efficiency and sustainability, advanced methods and technologies should be applied for the field irrigation systems. Using super water absorbents is one of the best solutions to save the water. In this research, the impact of using different types of superabsorbent including natural clinoptilolite zeolite, rubber powder and solid manure on plant growth were studied. For this purpose, various mixture ratios of the superabsorbents were applied in 10 treatments with 3 replications at 48 tests, total. Results showed adding superabsorbents to the soil would increase the stem length of the plant, the plants biomass and dry mass, and enhance the soil moisture saving. Using superabsorbents can be an efficient solution for sustainable agriculture.

Keywords: *Zeolite, Rubber powder, Solid manure, soil moisture absorbent, biomass, plant dry mass.*