PROSPECTS OF *AZOLLA* AS BIOFERTILIZER IN EGYPT

BY

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B.Sc. (Agric. Microbiology), Fac. Agric., Ain Shams Uinv., 1979
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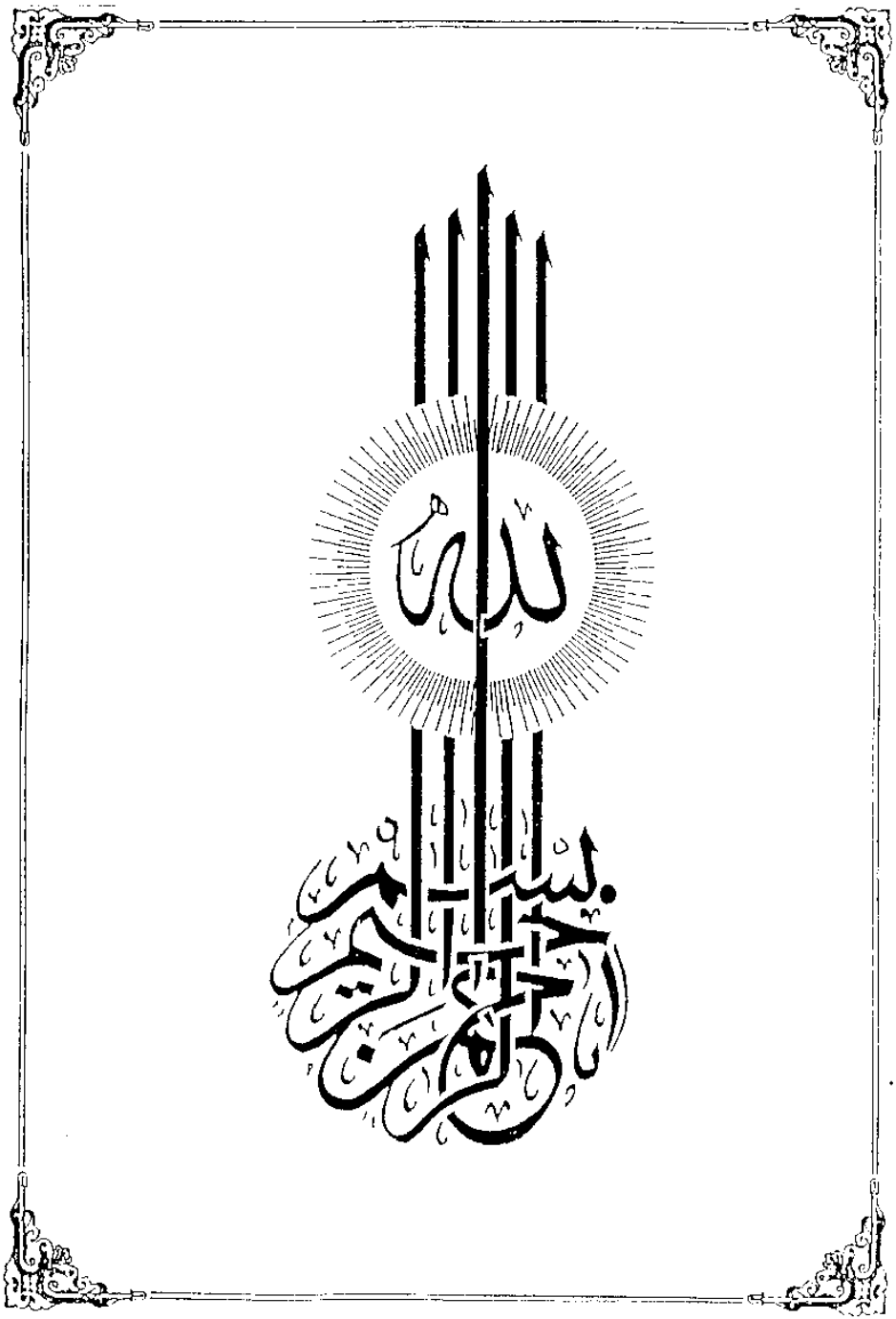

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APROVAL SHEET

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ABSTRACT

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The growth, N_2-fixation and nutrient uptake by Azolla pinnata 7001 and Azolla filiculoides 1001 were examined in the presence of a range of increased concentrations of phosphorus (0-100 ppm), zinc (0-30 ppm) and iron (0-10 ppm) as well as the two pesticides, saturn (0-0.056 ppm) and henozan (0-0.0112 ppm). The growth and yield responses of five varieties of rice to different rates of Azolla and/or urea were also evaluated under green house and field conditions. Data showed that split application of phosphorus gave better effects on growth, N_2-fixation and nutrient uptake within a greater range of phosphorus compared with basal application. While the whole range of lower concentrations of zinc (0 - 0.08 ppm) stimulated growth, N_2-fixation and zinc uptake, positive effects were only detected at 15 ppm zinc. Four ppm iron, on the other hand, appeared to be effective in enhancing all parameters measured compared with other concentrations. Both Azolla species were sensitive to all tested concentrations of saturn or henozan. However, the henozan

was less toxic to the two Azolla compared with saturn. Regarding the response of different varieties of rice to Azolla and/or urea application, data showed the application of 40 or 60 Kg N derived from Azolla generally stimulated growth and yield of the 3 tested varieties (Giza 171, Giza 177 and Giza 178) in pot experiemtns. Although in some cases the combination of low level of urea with Azolla gave better effects on the parameters measured compared with Azolla alone, no significant differnces were reported among treatments. However, the two varieties tested under field conditions, i.e., Giza 172 and Giza 175 showed different responses to the rates of Azolla and/or urea application. Spore formation was only reported in A. pinnata particularly under the conditions pervailing in summer, i.e., long day hour, high light intensity and high temperature.

Key words:

Azolla pinnata Vouil. - Azolla filiculoides Lam. - Phosphorus - Zinc - Iron - Saturn. - Benozan - N_2 fixation - Nutrient Uptake - Rice Varieties - Urea - Growth and yield responses - Azolla spp. - Soil

CONTENTS