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UPTAKE OF NITROGEN BY RICE FROM DIFFERENT SPECIES OF AZOLLA

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It has been reported that the availability of nitrogen from Azolla depends upon its C : N ratio. This study was conducted to examine the N-uptake by rice from Azolla pinnata, Azolla imbricata, Azolla caroliniana and Azolla microphylla, in relation to their nitrogen and fibre contents, and compare it with the N-uptake from different levels of Urea fertilizer (0, 15, 30 & 45 KgN/ha). The urea fertilizer used had a 10% a.e. ^{15}N.enrichment and the 30KgN/ Azolla material used was pre-labelled with ^{15}N by growing in a field nursery with 66% a.e. $^{15}N\text{-}(NH_4)_2\ SO_4$. The experiment was conducted in IM^2 microplots with 6 replicates per treatment, arranged in a randamized complete block design. All the N-fertilizers were applied basally just prior to transplanting. Rice plants harvested at gain muturity were dried at 65°C to constant weight and the dry weights recorded. Representative sub samples were powdered, and analysed for total-N and neutral-detergent and acid-detergent fibre contents and 15N-enrichment.

Results show that the percentage N-recovery from chemical fertilizer has decreased with increase in N-levels. Recovery from Azolla has been higher, except from A.imbricata which has the highest C:N ratio. This is because the young rice seedlings were not capable of absorbing all the chemical-N added at transplanting, whereas absorption from an organic manure (Azolla) was more efficient. The lease recovery from A.imbricata having the highest C:N ratio confirms the reports that N-availability is related to the carbon and nitrogen contents. 15N analyses performed and the financial support received from the International Atomic Energy Agency is gratefully acknowledged.

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