

ABSTRACT

Four species of *Sesbania* (*S. rostrata*, *S. aculeata*, *S. cannabina*, *S. speciosa*) and one species of *Aeschynomene* (*A. afraspera*) have been cultivated in pots on Roi-Et soil (fine loamy, mixed, isohyperthermic, Aeric Paleaquults) under greenhouse condition in order to examine factors affecting growth of these aquatic legumes. Phosphate rock and triple super phosphate were used at the rate of 0, 4.8, 7.2 and 9.6 kg P rai^{-1} . Shoot weight of plant decreased in the following order: *S. rostrata* > *A. afraspera* > *S. aculeata* > *S. cannabina* > *S. speciosa* in both sources of phosphate. Phosphate was confirmed to be one of the most critical factors. 7.2 kgPrai⁻¹ was the optimum rate. Phosphate rock was found to be replaceable for triple super phosphate. Nodulation, another critical factor, was necessary not only for N-supply but also for uptake of P from phosphate rock. Inoculation with *Azorhizobium caulinodans* was simple and effective. *S. rostrata* was judged to be the most promising for infertile soils of Northeast Thailand.
