

POTENTIAL IMPACT OF INDIGENOUS ARBUSCULAR MYCORRHIZAL FUNGI IN AN INDONESIAN ANDISOLS ON EFFICIENCY OF P FERTILIZER APPLICATION

Machfud Effendy

Department of Soil Science, Faculty of Agriculture, Universitas Pembangunan Nasional "Veteran" Jawa Timur, Jl. Raya Rungkut Madya Gunung Anyar, Surabaya 60294, Indonesia

Muljadi

Department of Crop Protection, Faculty of Agriculture, Universitas Pembangunan Nasional "Veteran" Jawa Timur, Jl. Raya Rungkut Madya Gunung Anyar, Surabaya 60294, Indonesia

John Bako Baon

Indonesian Coffee and Cocoa Research Institute, Jl. P.B. Sudirman 90, Jember 68118, Indonesia

ABSTRACT: The objectives of this study are to investigate the potential impact of indigenous mycorrhizal in andisols in influencing the reduction of P fixation, and efficiency of P fertilizer application. There were 3 years reasearch. The first year to investigate the population of mycorrhizal spores and P fixation reduction. The second year to study the effieciency of P fertilizer application, and the third year to study the inoculation to andisols. Results showed that number of indigenous mycorrhizal spores effects to reduced P fixation in the soil. Highest corn production achieved with optimum dose of 60 kg P ha⁻¹ when applied in soil with high number of mycorrhizal spores. Soil with high number mycorrhizal spores, reaching the highest production of potato tubers on the dose of fertilizer P equivalent to 30 kg P ha⁻¹. Results of inoculation showed that there is no effect of mycoorrhizal inoculation for potatoes production in andisols.

INTRODUCTION

Andisols area in Indonesia about 6.5 million hectares, distributed at Java island 894,000 ha, Sumatra 1,874,000 ha, Sulawesi 169,000 ha, Bali and Nusa Tenggara 94,000 ha, and Maluku 94,000 ha (23). Andisols that developed from the parent ashes vulcanic, located at an altitude