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Food Chemistry 76 (2002) 219–223

www.elsevier.com/locate/foodche

Food
Chemistry

Effect of nutritional status of faba bean (*Vicia faba* L.) on protein solubility profiles.

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Received 15 February 2000; received in revised form 30 October 2000; accepted 30 October 2000

Abstract

A field experiment was carried out to study the effect of mycorrhizal inoculation, phosphorus and sulphur fertilization, under two water regimes, on protein solubility fractions of faba bean. The major protein fraction of faba bean was the globulin fraction that ranged from 69.5 to 78.1 %. Phosphorus treatment significantly ($P \sim 0.05$) increased the globulin fraction of faba bean seeds in the wet treatment but significantly ($P \sim 0.05$) decreased it in the dry treatment. All fertiliser treatments significantly ($P \leq 0.05$) increased the albumin fraction in the wet treatment, whereas only treatments of mycorrhiza, mycorrhiza + sulphur and mycorrhiza + phosphorus + sulphur significantly increased it in the dry treatment compared to control. With the exception of the treatment mycorrhiza + sulphur, all other fertilisation treatments showed prolamin contents of faba bean seeds, similar to that of the control in the wet treatment. The G)-glutelin fraction of faba bean ranged from 8.9 to 14.4%. Treatments with sulphur, mycorrhiza and mycorrhiza + sulphur significantly increased the G)-glutelin fraction, whereas phosphorus and mycorrhiza + phosphorus treatments significantly decreased it. The insoluble protein (residue) of faba bean ranged from 1.8 to 3.4%. Generally, fertiliser treatments significantly increased the insoluble protein in the wet treatment. With the exception of treatments mycorrhiza and mycorrhiza + sulphur, all other fertiliser treatments significantly increased the insoluble protein content in the dry treatment. Water regime significantly ($P \sim 0.05$) affected the protein fractions. © 2002 Elsevier Science Ltd. All rights reserved.

Keywords: Faba bean; Fertilizers; Nutritional status; Protein solubility profiles; Water regime.

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Volume 76, Issue 2 pp. 129-271 (February 2002)