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[Factors Influencing Diamine Oxidase Activity and \$\gamma\$ -Aminobutyric Acid Content of Fava Bean \(*Vicia faba* L.\) during Germination](#)

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Tags

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Abstract

Factors (germination time, spectra, temperature, pH, and chemical inhibitors) influencing diamine oxidase (DAO, EC 1.4.3.6) activity and γ -aminobutyric acid (GABA) content of fava bean (*Vicia faba* L.) during germination were investigated in this study. DAO activity significantly increased in germinating seeds but varied with different organs. The enzyme activity was higher in shoot than that in cotyledon, hypocotyl, and radicle. When seeds were germinated in the dark, DAO activity was 2.35-, 2.00-, 2.36-, 4.40-, and 1.67-fold of that under white, red, blue, green, and yellow spectra, respectively. The optimum germination temperature and pH value for increasing DAO activity were 30 °C and 3.0, respectively. The DAO activity was inhibited significantly by aminoguanidine and sodium ethylenediamine tetracetate, while it was activated by CuCl₂ and CaCl₂. Germinating at an appropriate temperature and pH, 30% of GABA formation was supplied by DAO. Calcium was related to the regulation of DAO activity and GABA accumulation. Reprinted with permission from the *Journal of Agricultural and Food Chemistry*. Copyright 2011 American Chemical Society.

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