

## عنوان مقاله:

The effect of foliar application of grass pea sprouts extract on yield, yield components, and grain quality of two rice cultivars

## محل انتشار:

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## خلاصه مقاله:

Germinated grains are a rich source of minerals, water-soluble vitamins, enzymes, and soluble sugars that can be applied by foliar spraying on the foliage of crop plants where photosynthesis takes place. A field experiment was conducted during the rice-growing season of 2020 to evaluate the effect of grass pea sprout extract on the growth and yield of two common local varieties of rice (Anbarbou and Shamshiri). The experiment was the  $2 \times 2$  factorial combination of grass pea extract spray (2%) and rice cultivar. (based on the randomized complete block design with three replicates). Irrespective of foliar spray with grass pea extract, a significant difference between the two cultivars was observed for seed phosphorus and zinc content, and phytic acid concentration. Plants sprayed with the grass pea sprout extract significantly displayed greater net photosynthesis and water use efficiency. Grain yield, panicle number, grain number, grain weight, fresh and dry matter accumulations, and panicle length of plants at harvest increased up to 7.4%, 23.91%, 7.39%, 4.44%, 18.49%, 16.85%, and 26.5%, respectively, due to foliar application with the grass pea extract. Grain P content sprayed with the grass pea extract increased up to 65.38%, irrespective of the type of cultivar. Also, foliar spraying improved grain Zn content from 10.54  $\mu\text{g g}^{-1}$  to 29.75  $\mu\text{g g}^{-1}$ . Although, the grain phytic acid increased from 4.86  $\text{mg g}^{-1}$  to 6.71  $\text{mg g}^{-1}$  by foliar spraying of the grass pea sprout extract, however, the ratio of phytic acid to Zn content in the grain decreased from 46.11 to 22.55%. Foliar spraying increased grain Zn content in Anbarbou by 1.2-fold as compared to Shamshiri. On the other hand, foliar spraying increased grain phytic acid concentration in Shamshiri by 1.65-fold as compared to Anbarbou. It seems that spraying the rice plants with the grass pea sprout extract was beneficial in terms of agronomic and physiologic characteristics and nutrients such as Zn and P. Also, Anbarbou responded better to the sprout extract than the Shamshiri cultivar.

## کلمات کلیدی:

Foliar spray, Grass pea extract, Phytate, Zinc

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