

Bittawat Wichaidist 2012: Effects of Rice Straw Extracts on Some Physiological Processes in Some Plants. Master of Science (Botany), Major Field: Botany, Department of Botany. Thesis Advisor: Associate Professor Srisom Suwanwong, Ph.D. 88 pages.

The preliminary study on the effects of rice straw, cultivars Khao Dawk Mali 105, RD 6, RD 10, RD 27, RD 29, RD 41, Chai-nat 1, Chai-nat 2, Niaw San-pah-tong, Pathum Thani 1 and Suphan Buri 60, extracts on seed germination and seedling growth of giant mimosa (*Mimosa pigra* L.) were investigated. The results showed that the extracts did not inhibit seed germination but inhibited seedling growth of giant mimosa and Chai-nat 1 was the most effective extract in this experiment.

The study on the effect of Chai-nat 1 extract at 0.00, 1.25, 2.50, 3.75 and 5.00 g/l on seed germination and seedling growth of giant mimosa, mung bean (*Vigna radiate* (L.) R. Wilczek), barnyard grass (*Echinochloa crus-galli* (L.) P. Beauv.) and rice (*Oryza sativa* L.) cv. 'Khao Doak Mali 105' showed that the extract did not inhibit seed germination but inhibited seedling growth of all tested plants and the inhibition was increased by increasing the concentrations.

Nevertheless, the inhibitory ability of the extract did not come from effect on physiological processes because the study on the effects of the extracts on some physiological processes showed that the extract had no effect on photosynthetic pigments content, non-cyclic electron transport in photosynthesis, ammonia assimilation and lipid peroxidation. However, the study on effect of the extract on mitotic cell division showed that the extract could inhibit cell division in shallot (*Allium ascalonicum* L.) root tip. Therefore, the inhibition of seedling growth was caused by the extract the inhibition of root mitotic cell division.

Student's Signature

Thesis Advisor's Signature

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