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Section:

SEARCH FOR NEW PLANT HORMONES AND BIOHERBICIDES: INFLUENCE OF SMILAX FLUMINENSIS EXTRACT AND FRACTIONS ON SEED GERMINATION AND SEEDLING DEVELOPMENT OF MONO AND EUDICOTYLEDONOUS SPECIES

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With the increase in the world population, there is also a growing demand for food production. Thus, substances are used to increase agricultural production, and synthetic agrochemicals are used to control weeds in crops, but these can be highly toxic and can promote both physiological and biochemical changes in plants. Studies involving seed germination have been used to evaluate the biological activity of natural products with hormonal and/or herbicidal actions, which act by interfering with germination and/or development during the culture of important agricultural species. The species *Smilax fluminensis* Steud. (Smilacaceae), popularly known as “cipó-quina” and “ijuapeca guasu”, originates from Brazil and has several uses in folk medicine and indigenous peoples, with various proven biological activities. The aim of this study was to assess the influence of *S. fluminensis* extract and fractions on seed germination and seedling development of mono and eudicotyledonous species. Ethyl esters and phytol were characterized as the major compounds found in hexane fraction. In the polar samples, the main compounds annotated were kaempferol, luteolin and quercetin derivatives, and saponins. The ethanol extract (EE) and hexane (HEXF), dichloromethane (DCMF) and hydroethanol (HIDF) fractions increased the *in vitro* germination of *Allium cepa* seeds compared to controls. Ethyl acetate fraction (EACF) inhibited seed germination and seedling development. In general, the fractions inhibited the germination of *Nicotiana tabacum* seeds and reduced the seedlings development, mainly at 750 µg/mL and 1000 µg/mL, compared to the controls. Thus, this study suggests that the extract and fractions of *S. fluminensis* exhibited an effect more similar to plant hormones on *A. cepa* (monocotyledonous) and bioherbicide on *N. tabacum* (eudicotyledonous), and may therefore play an have an important role in sustainable agriculture.

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