ALLELOPATHIC EFFECT OF 2-BENZOXAZOLINONE TOWARDS SOME CROP AND WEED PLANTS

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2-Benzoxazolinone - chemically a benzoxazinoid or cyclic hydroxamic acid - is found in a number of higher plants such as wheat, rye and maize and is known to exhibit a wide range of biological activities besides involvement in plant defense strategies. However, little has been done to explore and understand its allelopathic activity against a wide variety of plants. A study was therefore planned to find out its allelopathic effect against other plants such as alfalfa (*Medicago sativa* L.), mungbean (*Phaseolus aureus* Roxb.), coffee weed (*Cassia occidentalis* L.) and hairy beggarsticks (*Bidens pilosa* L.). For this purpose, aqueous solutions of benzoxazolinone ranging from different concentrations such as 0.01, 0.1, 0.5, 1.0, 2.5 and 5.0 mM were prepared and their phytotoxicity was tested on the test plants. The study reveals that the germination and growth of all the test plants was significantly reduced especially at higher concentrations of 2.5 and 5.0 mM. At concentrations beyond 5 mM, a complete inhibition of germination was noticed. Further, the seedling growth measured in terms of seedling length and dry weight of the test plants was also significantly reduced indicating the growth retardatory effect of benzoxazolinone. Even the content of chlorophyll and cellular respiration in the treated seedlings were also reduced thereby indicating the adverse effect of benzoxazolinone on photosynthetic and respiratory ability. The growth inhibitory effect of benzoxazolinone was also observed in soil when the test plants were sown in soil amended with 5mM, 10mM, 25 mM and 50 mM concentrations of benzoxazolinone and a drastic effect on the seedling growth was observed. Based on the results, it is concluded that benzoxazolinone exhibit growth retardatory effect towards the test plants as aqueous solution as well as when amended in soil.