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Allelopathic effects of four eucalyptus species on redgram (*Cajanus cajan* L.)

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Abstract

Investigations to identify the allelopathic compounds in the leachates of bark, fresh leaves and leaf litter of *Eucalyptus tereticornis*, *E. camaldulensis*, *E. polycarpa* and *E. microtheca* using paper and as chromatography showed the presence of coumaric, gallic, gentisic, hydroxybenzoic, syringic and vanillic acids and catechol. The influence of identified phenolics as well as leachates on the germination, seedling length, dry matter production, vigour index and nitrogenase activity of redgram (CO.5) was studied. Germination was inhibited by each individual compounds tested while vigour index was significantly affected by catechol, ferulic, gallic and syringic acids, compared to control. Bioassay with leachates revealed significant reduction in germination over control in all the cases, 7 days after sowing. Dry matter production was affected by *E. camaldulensis* and *E. microtheca*. Meanwhile, vigour index was affected by *E. camaldulensis*, *E. polycarpa* and *E. microtheca*. Seedling length was affected in all the cases except *E. camaldulensis*, 37 days after sowing. Simultaneously, reduction in vigour index and nitrogenase activity was also noted in all the cases, compared to control.

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