The Mixture of Pimenta racemosa and Cinnamomum camphora Extracts and the Effects on the Roots and Soil After Being Applied to Cynodon dactylon

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Eliminating invasive grass to protect crops and plants with the use of synthetic herbicides has resulted in dangerous impacts on soils, human health and the environment. Therefore, it is necessary to develop alternative methods, such as allelopathy. This study intends to contribute a practical and sustainable method to inhibit the growth of not wanted grass without adverse effects on the environment. The hypothesis was: a high concentration of the mixture of Pimenta racemosa and Cinnamomum camphora extracts will inhibit the growth of Cynodon dactylon without detrimental changes on soil's composition and grass. To test the hypothesis, leaves of Pimenta racemosa were boiled at 400°C for 30 minutes, then diluted concentrations of 0%, 25%, 50%, 75%, 100% in distilled water were prepared, and different concentrations of Cinnamomum camphora extracts were added. For 12 days, 50 mL of each mixture were added individually on four previously prepared pots with grass and Cynodon dactylon. At day twelfth, gradual deterioration of Cynodon dactylon was observed with no effect on the grass. At 100% concentration, the length of Cynodon dactylon's root was 184.96 mm longer (as a reaction to the natural herbicide) than control group which was at 0%. Soil tests revealed that levels of nitrogen, phosphorus, potassium and pH remained normal in each sample. This research evidenced that the hypothesis was accepted, since higher concentrations inhibited faster the growth of Cynodon dactylon without affecting soil nutrients. This finding could represent the beginning of an in harmony with nature alternative to herbicides.

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