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Influence of Increasing CO₂ and Temperature on Seedling Emergence and Early Growth of Different Cultivars of Pumpkin

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With rising levels of CO₂ in the atmosphere, understanding the possible impacts on the development and growth of plants becomes increasingly important. The aim of this study was to evaluate the interaction between different temperatures and CO₂ levels in the germination and early development of seedlings of different species of pumpkin. Seeds of *Cucurbita pepo* – cultivars Caserta and Redonda – and *Cucurbita maxima* – cultivar Coroa – were sown in trays of 36 cells and held in growth chambers with different combinations of levels of CO₂ and day/night temperatures. The variables studied were emergence percentage, mean emergence time, average speed of emergence, emergence speed index, shoot and root length, fresh weight, and dry weight. The experimental design was completely randomized in a 2 X 3 factorial scheme with two levels of CO₂ concentration (360 and 550ppm) and three temperatures (26/20, 29/26 and 32/26°C), with four replicates of 18 seedlings for each treatment. The CO₂ levels used caused different effects among cultivars for most variables, but a significant change in the physiological behavior of seedlings with increasing CO₂ concentration was not observed, and the increase in temperature led to changes in both physiological seed types as seedlings.

Keywords – cucurbitaceae, germination, global climate changes.

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