Enzymatic Activity and Biochemical Composition in Leaves of Green Bean (Phaseolus vulgaris L. cv. Saxa) Grown in Almond Shell Substrates

The almond shell is the main by-product of almond production, and is currently a material with no important use. However, it is produced each year in considerable amounts, and finding an alternative and valuable use is of great interest. This work intends to elucidate the possibility of the addition of almond shell to growth substrates on green bean plant and its effect on leaf characteristics. Almond shell was used in a mixture of 20% shell and 80% peat (AS), and compared to the control (C) substrate, a mix of 33.3% of vermiculite and 66.6% of peat, using low and well watering conditions (50 or 100% of field capacity). The parameters that were evaluated include biochemical parameters of leaves, namely photosynthetic pigments, total phenolics and antioxidant activity, proteins, but also enzymatic activity and phytohormonal content. The addition of almond shell did not result in changes of the content of photosynthetic pigments, but led to negative changes on several of the remaining parameters, including yield, recorded enzymatic activity, ABA content and lipid peroxidation. These results indicate some deleterious effect of the addition of almond shell to growth substrates for cultivation of green bean.

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