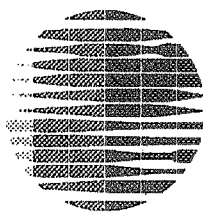


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Abstract Book

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Lisboa, 6-8 de Dezembro de 2014

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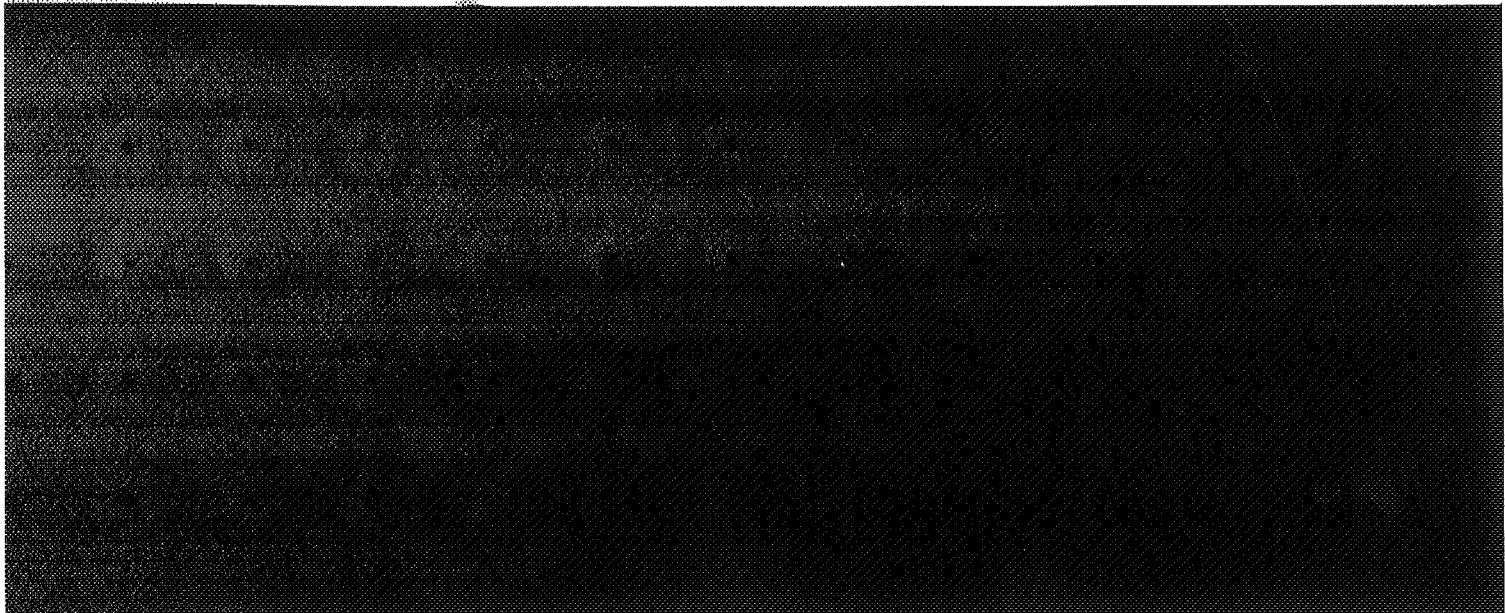
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S5/P1: FIRST APPROACH TO THE STUDY OF THE NUTRITIONAL REQUIREMENTS OF STRAWBERRY TREE

Rosinda Pato¹, Sara Pereira¹, Fernando A. Guerra¹, Jorge Bandeira¹, Filomena Gomes¹

¹Instituto Politécnico de Coimbra, Escola Superior Agrária de Coimbra, CERNAS, Bencanta, 3040-316, Coimbra, Portugal.
(risp@esac.pt)

Arbutus unedo, known as strawberry tree, is a Mediterranean species, drought tolerant and able to regenerate following forestry fires, making it interesting for reforestation programs in Mediterranean regions. Fruits with anti-oxidant potential are edible and have been used to make a spirit called "medronheira", which represents the main income for owners. Extensively areas of the species occur mainly in the Southern mountainous regions (Serra de Monchique and Caldeirão). Farmers are interested on the establishment of *A. unedo* new orchards, in the central and northern regions, taking advantage of the financial programs and reducing the risk of forest fires, due to the continuous area of *Pinus pinaster* and *Eucalyptus globulus*. In the current projects we intend to convert the wild plant into a profitable fruit species.

To study the nutritional requirements of strawberry tree, different samples (soils, organic layers and leaves) were collected in projects study areas established in central (Penacova, Pampilhosa da Serra, Oleiros) and southern regions (Monchique). Samples (N 63-97) were collected in orchards and natural regeneration areas (from 2 to 22 years old), and the vigor of the plants was assessed on a scale from 1 to 5, the site index. Our aim is to quantify the nutrients extracted by the plant, establishing a relationship with the site production and identifying the appropriate nutritional levels for the species. The first results concerning soils analyses (pH, OM, P₂O₅, K₂O, exchangeable cations and the micronutrients Fe, Cu, Zn, Mn), organic layers (dry matter, OM, N, C/N) and leaves (N, P, K, Ca, Mg, and the micronutrients Fe, Cu, Zn, Mn) are presented.

The content level in the leaves is for macronutrients: N>Ca>K>Mg>P and for micronutrients: Mn>Fe>Zn>Cu. The PCA (factor loadings > 0.7) and cluster analysis show that: 1) site index (plant vigor) is dependent of the study areas and directly related with the quantity of organic layer (6.07±4.93 ton/ha), the N of the organic layer (0.83±0.24 %), the P in the leaves (0.05±0.03 %) and inversely related to the C/N of the organic layer (50.62±12.12); 2) the plant age is directly related to the K in the leaves (0.33±0.12 %) and inversely related to the N in the leaves (1.03±0.17 %) and this nutrient is directly related to the organic carbon in the soil (3.09±1.63%); 3) the soil pH (5.3±0.3) affects the content of Fe and Mn in the leaves; 4) the PCA explains about 62.1% of the total variance.

These results suggest that it is important maintaining the organic residues of crop and natural regeneration species, due to the relevance of organic soil layers on dynamics of nutrients of the ecosystem. As future perspectives of this study, we intend to continue the evaluation of soil fertility (soil and the organic soil layer analysis) and plant (leaf analysis), as well as assessing the production and fruit quality, in order to identify and validate the nutritional requirements of strawberry tree.

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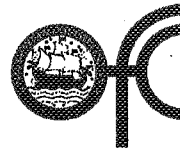
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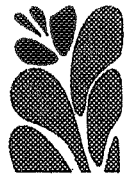
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