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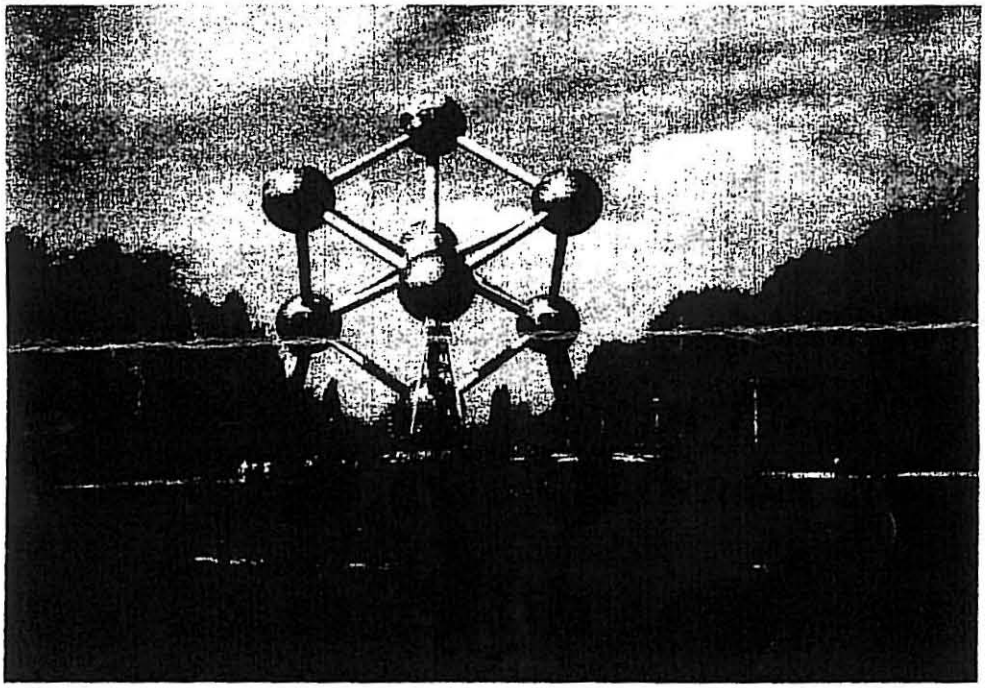

Book of Abstracts

Oral and Poster Presentations

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COPPER RESIDUES IN OLIVES AFTER OLIVE TREE TREATMENTS WITH THREE DIFFERENT COPPER FORMULATIONS

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Field tests were performed to control two olive fungal diseases known as olive anthracnose, *Colletotrichum spp.*, and olive leaf spot, *Spilocae oleagina* (Cast.) and to evaluate the pesticide residues in the olive fruits harvested at different times. The experiment was carried out in a *Cv.* Cobrançosa olive orchard located near Mirandela, Northeast of Portugal. The orchard was subdivided in four plots, three of them for application of three different copper preparations (Bordeaux mixture Valles – copper sulphate and calcium hydroxide, Kocide DF- copper hydroxide, and Curenox 50 – copper oxychloride) and one as control. In the middle of October the different plots were sprayed with the aqueous suspensions of the pesticides prepared following the supplier indications, i.e., $CuSO_4$ +$Ca(OH)_2$ (20% Cu), $Cu(OH)_2$ (40% Cu), $Cu(OCl)_2$ (50% Cu), and water, respectively. After treatment, at different times - four hours, 8, 13, 28 and 44 days - five trees were randomly selected in the middle of each plot, and 60 olive fruits per tree were collected in plastic bags and stored at –20°C until copper analysis. The olives were washed with tap water, the stones removed with decontaminated plastic material, the samples dried in a stove, pulverized and heat digested with H_2O_2 plus HNO_3 mixture. The copper contents were measured by atomic absorption spectrometry with graphite furnace.

Although the different copper concentrations of the applied pesticides, olive copper residues were similar for the $CuSO_4$ +$Ca(OH)_2$ (20% Cu) and $Cu(OH)_2$ (40% Cu) applications (from 34.4 µg/g to 14.5 µg/g and from 30.1 to 16.9 µg/g, respectively, for the five time collections). Copper contents were about the double in the olive fruits treated with $Cu(OCl)_2$ (50% Cu) product (from 63.9 to 23.9 µg/g). Olives from all the treated trees had at all the collection times copper contents significantly higher than those of tree controls sprayed with water, ranging the values from 7.7 to 9.6 µg/g. In conclusion, the treatment of olive trees with copper pesticides can significantly increase the metal levels of the olive fruits and the resulting olive oils.