

## **0084 - BEHAVIOUR OF OXYFLUORFEN IN TWO SOILS AMENDED WITH SOLID ORGANIC WASTE FROM OLIVE OIL PRODUCTION (ALPERUJO)**

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Oxyfluorfen is an herbicide used in olive cultivation as an alternative to other herbicides (diuron and terbutylazine) recently banned in this crop. To prevent potential water contamination by this herbicide, it is important to study its behaviour in soils. For that reason, dissipation, photodegradation and leaching experiments of oxyfluorfen were carried out in two soils with different organic matter content (O.M.), SJ (O.M.= 1.84%) and P2 (O.M.= 0.63%), and amended with organic waste from olive oil production (alperujo) in the South of Spain. Dissipation study was carried out in these soils amended at two different contents of alperujo (5% and 10%) and under two different soil moisture contents, 20% and 40% of field capacity (F.C.). Constant temperature of 25° C was maintained during the 84 days of the experiment. Higher dissipation of oxyfluorfen was found at 40% F.C. soil moisture than at 20% F.C. soil moisture in both amended soils. No significant differences in oxyfluorfen dissipation were observed between the two types of amended soils at 20% F.C. soil moisture. However, at 40% F.C. soil moisture, dissipation was higher in P2 soil amended with 10% of alperujo (63%) than with 5% of alperujo (54%). In the case of SJ soil, dissipation was lower in the case of 10% of alperujo (43%) than in the 5% of alperujo (54%). Photodegradation study of this herbicide was recorded under xenon irradiation in P2 and SJ soil samples amended with 10% of alperujo during 96 h. In general, low oxyfluorfen photodegradation was observed in both P2 and SJ amended soils, recovering 71% and 89% of initially added oxyfluorfen, respectively, being this photodegradation more noticeable in P2 soil than in SJ soil. Leaching study was carried out at different temperatures (5° C and 30° C) in handpacked soil columns. No oxyfluorfen residues were found in leachates. An increase in alperujo content has a different effect depending on the type of soil, specially in the case of O.M. soil content. Also, moisture and temperature, and UV irradiation were found as important factors in the degradation of oxyfluorfen. In the present work, O.M. plays a protective action in the degradation of the chemical, increasing the persistence of oxyfluorfen and the risk of leaching.