

# Promising bacteria for glyphosate degradation

Cátia Nunes \*, Luísa Gonçalves, Paula Baptista

Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança

**Abstract:** Soil contamination is particularly serious. One of the main factors contributing to this is the accelerated development of agriculture, which has led to a strong increase in the use of herbicides. Studies show that herbicides formulated on the basis of glyphosate, have a carcinogenic potential in laboratory animals, being classified by the WHO as a probable carcinogen for humans. In this context, our research works in the area of decontamination of agricultural soils, using native microorganisms, where the pollutants are transformed into by-products that are less harmful to the environment. A sampling of a wine farm in Douro was collected, followed by isolation of bacterial by means of selective cultures and their respective pure culture. Subsequently, bacterial tests were performed in vitro, with normal and in duplicate concentrations of glyphosate. At the end was isolated 379 bacteria. The results were as expected, with greater bacterial growth occurring in low soil dilutions of around 26%, as well as in recommended concentrations. On the other hand, growth at high dilutions and concentrations was found to be lower with a percentage of 12%. After bacterial tests on microplates, it was found that only 4.80% of the bacteria have the potential for glyphosate degradation. Through this study it is concluded that in soils where the use of herbicides is recurrent, there are promising bacteria for their degradation.

**Keywords:** Glyphosate; bacteria; bioremediation; soil