



## **Erosion processes by “piping” on abandoned lands. Region of Murcia, South - eastern Spain.**

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The abandoned land in semiarid Mediterranean regions, with low productivity, is an obvious fact for several decades. In humid regions and with good soil, the abandoned lands, from an erosion point of view, can be seen as beneficial, as it quickly develops a major vegetation cover that protects the soil. However, in semiarid regions, with a shortage of rain and soil poorly developed, the abandoned lands, in most cases, increase the soil degradation and erosion processes.

The Region of Murcia, located in south-eastern Spain, is a semi-arid region with little rainfall and high climate variability. It also has large areas of marl and low vegetation cover. Most of these lands, terraced and planted with trees or crops of rainfed cereal, in the decade of the 60s and 70s of last century, was abandoned and now, they have developed significant erosion processes, especially "piping".

In this research 67 areas located in different areas of Murcia region are examined, which correspond with abandoned lands where processes of "piping" reached an important development. There had been made various observations and detailed topographic measurements in each one of those areas. In 15 areas representative soils were sampled at two depths (0-30 cm and 100 cm), with the aim of analyzing their physical - chemical characteristics and to establish similarities and differences between different areas and, at the same time, to investigate the causes that have given rise.

As a general conclusion we could say that the terraced fields, that have been abandoned, on fine lithologies texture and with differences at different depths, with high salt content, low vegetation cover, in semi-arid conditions, and with important gradients between terraces, represent a potentially optimal area for the piping processes development.

A soil conservation practice common in the Mediterranean area as in the terraces, in areas such as those that have been studied, causes the opposite effect after its abandonment. The terraces create the hydraulic gradient necessary for the development of the piping processes and the higher the terraces built, the greater the degree of erosion that can be achieved. The erosion forms, at times, are so pronounced (more than 8 meters deep) that farmers are unable to be able to recover for cultivation.