

## **Innovative biocatalytic production of upgraded peat alternative composts from green wastes and biowastes**

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Large volumes of green wastes and biowastes are produced in Greece. So far, handling these residues, besides the high cost, has significant scientific and technical disadvantages.

During the last years no remarkable progress was achieved regarding the potential utilization of such residues in agriculture. The existing reports on treatment methods and products are not based on any specifications. Field applications are mainly empirical involving large amounts of residues and do not seem to derive from reliable experimental data. Positive effects in field applications may exist but is simply due to the raw organic matter applied and the presence of some nutrients. The scientific evidence is lacking.

Our research team developed an innovative biocatalytic production of compost with high added value compared with the conventional methods of management.

According to our method, even degraded and toxical remains can be utilized.

A biocatalyst (substrate produced from organic rock, extremely rich in microorganisms), suitable for this manufacturing process, was added as well as zeolite with a specific granulometry. The mixture was subjected to microaerobic fermentation for 2 months. Humidity and temperature were recorded daily. The mixture was periodically stirred and water was added when necessary.

The product obtained can be classified as a first class soil conditioner (End-of-waste criteria, European Commission.) and was evaluated as suitable for organic farming.

The humic substances content of the mixture constitute the most accurate maturation index of the final product.

In this work, a detailed analysis of this method is presented. The aim is to set up standards for compost evaluation, which will also clarify the application of composts as soil substrates and/or growing media.

We have already proceeded in agricultural applications applying the direction of biological cultivation and the codes of best practical practices.

The pilot production continues to specify fully the production parameters in order to prepare a business plan.