

On-campus composting for food waste and garden waste

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In Europe, municipal solid wastes (MSW) represent around 10% of total waste generated, but due to its composition and its link to consumption patterns, has a complex nature. Therefore, MSW is an important environmental problem to urban regions. Despite several attempts to reduce the production of MSW, it has increased over the last fifteen years, from 513 kg per capita in 2006 to 530 kg per capita in 2021 (Eurostat, 2023).

In Portugal, 5.311 million t of MSW were produced, in 2021, representing an increase of 1% compared to 2020 (APA, 2021). Although in recent years the fraction of biowaste in MSW has decreased, it still represents about 37%. The biowaste must be collected separately or recycled at source by the end of December 2023.

To achieve sustainable and efficient management of MSW is necessary to promote local treatments, like composting. In this way the citizens contribute to waste recycling and to circular economic, by the application of compost in the gardens.

In recent years, several European countries have implemented decentralized solutions, which make it possible to treat the waste as close as possible to the place where it is produced.

Italy has various projects related with community composting, presenting a capacity of around 6.4 thousand t/year (Bruni et al., 2020). Also, Spain has several projects for local composting, for example, the province of Pontevedra (Spain), with a capacity of almost 2.5 thousand t/year (Vázquez et al., 2020).

Portugal has some decentralized composting projects, as is the case of Lisbon with a capacity of 0.8 thousand t/year (CMLisboa, 2023).

Also, the higher education institutions are suitable to implement composting, because usually the campus has canteens, bars and gardens, where biowastes are produced, allowing the reduction of wastes sent to incineration and landfill and permit the dissemination of composting to society (Torrijos et al., 2021). Due to the specificities of each institution and in order to keep composting running on campus over the years, it is necessary to develop further studies.

The present work intends to analyse the knowledge of users of higher education institutions concerning domestic composting. Furthermore, domestic composting of biowaste produce in campus will be analyse and evaluated.

To achieve the objective of the present work, an inquiry was carried out concerning biowaste and domestic composting. Also, several awareness campaigns on selective collection of biowaste and domestic composting were carried out. To evaluate the composting process several domestic composters were set up near the point where food wastes are produced (Figure 1). Due to the large amount of garden waste, a composter was set up with wooden pallets (Figure 2) for this type of waste. During the composting tests, different fractions of biowaste (food waste and yard waste) will be analysed, through the determination of various parameters (for example, temperature, pH, moisture, solids, etc.). The compost obtained during the tests will be applied in the campus gardens and a part will be distributed to campus users.



Figure 1. Composter for food wastes



Figure 2. Composter for garden wastes

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