QUALITY OF PELLETS FROM OLIVE GROVE RESIDUAL BIOMASS

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Abstract

Two of the main environmental problems that man currently faces are the high rate of waste generation and energy consumption, both bearing directly upon climate change. The situation requires a change in waste management models, with a greater focus on waste reduction, recycling and appraisal, as well as a change in energy models. This signifies the use of renewable energy sources to supply part of the future demands of fossil fuel. Such sources include biomass sources from agricultural waste. Southern Spain has a large supply of biomass of a residual nature from agricultural activities, such as olive pruning. However, the use of pellets made from olive tree leaves or a mixture of different parts of olive trees is not as yet widespread. This study aspires to improve the quality of pellets from woody agricultural residues and their application in the domestic and industrial sectors, specially one of the most common woody residues in southern Spain, those which come from olive trees.

This research shows that the use of different types of raw materials from olive grove residues results in pellets with different physical and chemical properties, which define their possible application. The purpose of this study is to test pellets from olive wood (branches and leaves) in respect to quality and to raw material properties. Laboratory procedures according to Spanish norms are necessary to determine those characteristics that affect the process of pelletization as well as the quality of the final product: for example, humidity, production of ash, composition, etc. This will allow for the selection of pelletizable materials from olive trees, and for possible combinations of this material to enhance the quality of the final product.

The initiative can be considered original, opportune, and capable of transferring guaranteed results. It is original in that Spain has no competitive technology for the production of pellets and boilers for their combustion; it is necessary to foment knowledge of this source of energy and adapt existing technology to the characteristics of our agricultural residue.

Its development will permit the energetic appraisal of this kind of agricultural waste, one of the strategic objectives of the normative for waste management.

More research is needed to design the production of pellets, which will have properties suitable for specific applications and which will possess the quality that satisfies accepted standards and norms.