

## Conical spouted bed combustor for catalytic combustion of agricultural wastes of grapevine productions

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Global energy demand is increasing worldwide and this energy is obtained mainly by fossil fuels, which means negative environmental impact. This fact implies the need to search for energy alternatives such as renewable energy resources, to preserve natural resources as well as to prevent global pollution by reducing greenhouse gases. Biomass is currently one of the most important renewable energy sources.

Exploitation of biomass wastes as renewable energy sources by spouted beds technology may be a sustainable alternative. This technology has been proven to perform suitably with catalyst beds [1] and it has been previously successfully applied for thermal treatment of biomass wastes by combustion [2-5].

In this paper, a conical spouted bed combustor of environmental efficiency has been applied for thermal exploitation of vine shoot waste by catalytic combustion. With this objective, system behavior has been analyzed and the minimum gas velocity necessary to achieve combustion of beds of vineyard waste has been determined from the values of pressure drop by decreasing slowly the gas flow as the point when the pressure drop levels off [6]. Catalytic combustion of vine shoot waste has been performed in a conical spouted bed combustor in the temperature range up to 550 °C. Combustion yields have been calculated from the gases concentration data [6-8] measured by Testo 350 gas analyzer during combustion process and the influence of the catalyst and inlet gas temperature on combustion yield has been analyzed. The use of Pd/Al<sub>2</sub>O<sub>3</sub> catalyst gives way to lower minimum combustion temperatures than without catalyst and combustion yield values obtained are higher than without catalyst.

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### Biography:

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