

Recycling of high moisture wastes using drying and torrefaction by a microwave plasma burner

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High moisture food waste has become the primary cause of odor and environmental pollution. Furthermore, the cost for the disposal of food waste is increasing every year, and recycling rate is also very low. The microwave plasma burner was presented as a method for dry and recycling of food waste, which cause odor and environmental problems. The microwave plasma burner (MPB) operates by injecting LPG as a hydrocarbon fuel into a microwave plasma and by mixing the resultant gaseous hydrogen and carbon compounds with air. The spoiled tangerine used as a food waste, because spoiled citrus fruits caused serious odor and soil pollution on Jeju Island in South Korea. The moisture and carbon compound contents of spoiled tangerine were 85.30% and 14.45%, respectively. However, the moisture and carbon compound after drying of spoiled tangerine using a MPB were 10.37% and 76.91%, respectively. Additionally, dried tangerine has been tested for fertilizer quality and confirmed that it can used as a fertilizer. We believe that the MPB is effective, compact, and economic tool for drying of high moisture waste food.

References

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