

## Carbonization of chicken droppings

The known technologies of processing chicken droppings are energy – consuming since they need much energy to remove 50 percent of humidity. Alternative technology is an autothermic process of chicken droppings carbonization in shaft reactors as in following diagram..

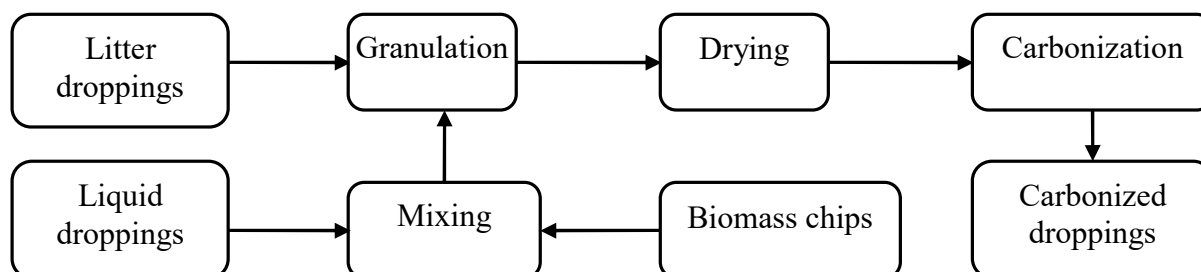
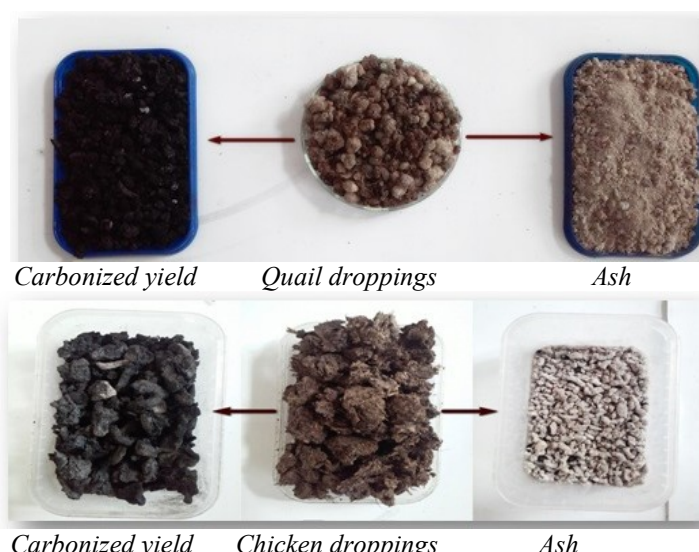


Fig. 1. Technological diagram of the chicken droppings processing

Litter droppings are shaped into granules of 6...10 mm using screw granulator. To deal with liquid droppings small-shaped biomass elements (sawdust, peat, cut straw) are added prior to granulation. The granules are dried to the humidity of about 30% and placed into reactor to undergo the process of carbonization at temperature of about 500–700 °C. The heat of carbonization comes from the gas released from carbonization of granules. No additional heat is required.



*Process visualization*



*Products of the chicken droppings processing*

The droppings may be proceed to ash if it is necessary. Carbonized droppings or ash may be used as fertilizer. The yield of carbonized droppings is 54–57% for chicken droppings and 30–38% for quail droppings.

### Advantages of developed technology

1. Energy efficiency (the process is autothermal)
2. Waste free and environmentally friendly
3. Simplicity and reliability of equipment
4. Economic efficiency (waste utilization and the production of valuable fertilizers)

Stage of project development is an experimental installation