Wood Vinegar

Burner

Getaway moisture by heat steam

- **Light fire at lower door around 1-2 hours depend on raw material. Heat will float up and some will go out at the outlet some could not go out will cycling in the burner with a new coming heat. Gray color smoke at the beginning, when crazy smoke come out it mean there is enough heat in the burner stop adding more fire wood and close inlet door about three by fourth**

From wood to Charcoal

- **Wood release all organic matter good to collect Wood vinegar, (cover the outlet hole with a piece of tire if liquid is like tea color, mean it is ready to collecting)**
- **when wood vinegar turn dense color and sticky stop collecting liquid.**
- **When smoke turn to sky blue color it mean wood had turning to charcoal.**

Charcoal purification

- **When smoke turn into blue open inlet about half, adding Oxygen to immediately increase temperature than smoke will turn to light blue (about 30 minutes) the processed mainly to get away of tar (cancer caused)**

Carbonization

- **A process that remove all moisture wood that contain in controllable burner by steam heat (not direct light wood with fire and kill fire with water) and kill fire by stop oxygen flow.**

Cooling

- **When charcoal is clear of tar there will clear smoke (can see through). Completely close every hole let it sit around 8-12 hours to kill the fire inside burner**
- **Open burner, remove charcoal out and let it sit for an hours before pack it in to a package**

Out come

- **High quality charcoal**
- **Wood vinegar (200 L burner) get 1 liter liquid, let it sit for 3 month it will divide into 3 part. On the top/surface is light oil, middle part is Wood vinegar and the bottom is tar.**

Wood vinegar

- **Mind acid, pH 2.5-3**
- **Specific gravity (1.007-1.024)**
- **Clear tea color**
- **If quality is difference quality may not ineffective.**
- **promote plant growth, faster harvest, good test and decrease farm cost**

Wood vinegar component

- **Water**
- **Formic acid**
- **Citric acid**
- **Formaldehyde**
- **Phenol**
- **Organic matters (similar to hormone)**

Beneficial

- Pest control
- Disease treatment (some)
- Promote germination rate and growth
- Decreases odor
- Decrease farm cost
- Environment friendly

Charcoal – Alternative energy

- Cooking
- Animal food raw material
- Soil quality improvement
- Raw material (starter) for Cosmetic production such as "for Acne", firework, water filter, electronic equipment, Soap, toothpaste,
- Business

Tar beneficial

- **If redistill at temperature 180 it will produce a kind of lipid acid (short) good for Stomach**
- **If redistill at temperature 200 -220 the wood vinegar can be beneficial for kidneys.**

How to burn

- Lay wood in the burner (vertical)
- Close
- Light fire
- Check smoke
- Collect liquid
- Close all hole
- Remove charcoal

How to Burn