Worms For Worm Farms & Education

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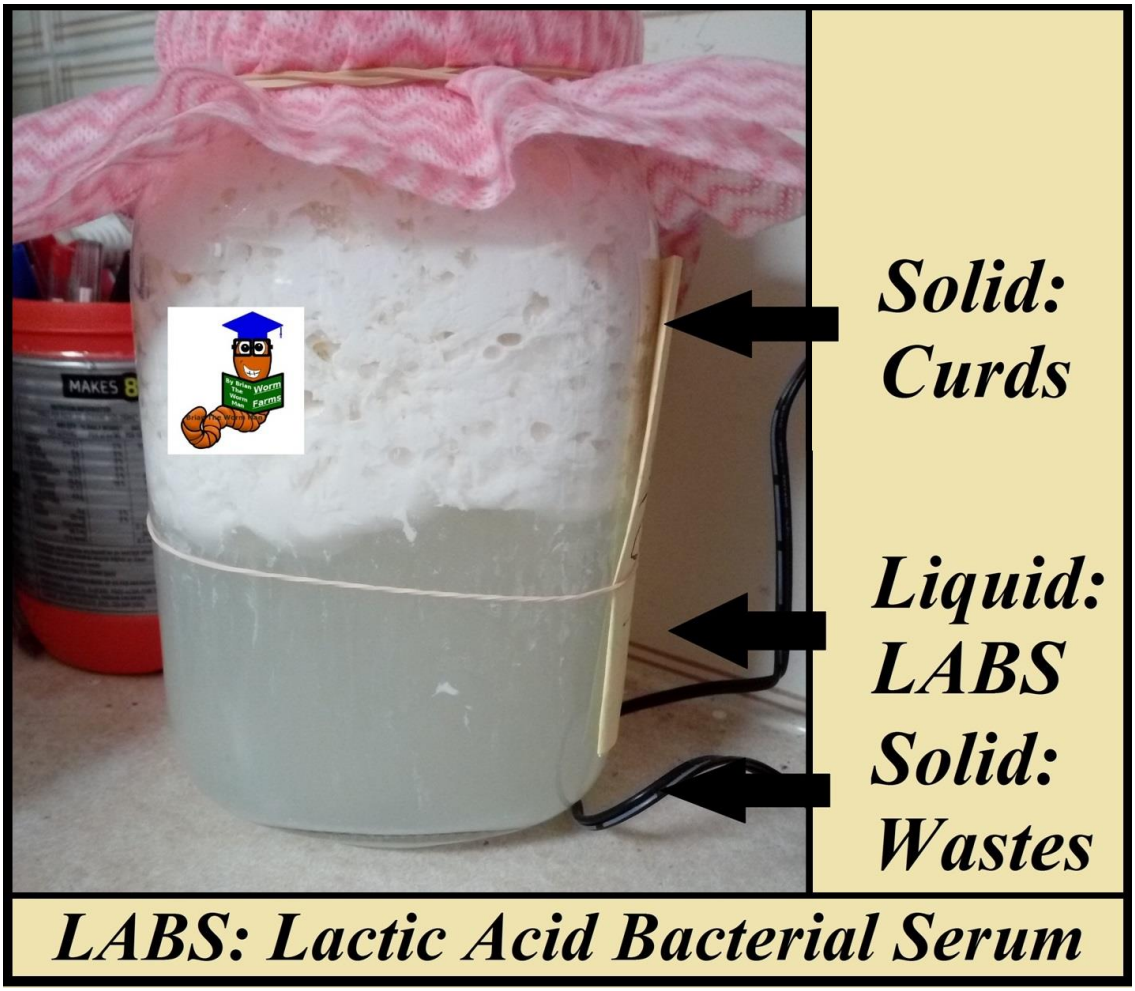
How To Make L.A.B.S. (Lactic Acid Bacterial Serum)



A Quick Overview Of LABS

LABS, made popular in Korean Natural Farming (KNF), is an example of a microbial solution gathered from nature.

Although Lactic Acid Bacterium were discovered by Joseph Lister in 1873, it was not until ***around 1966 that Master Cho, of Korean Natural Farming*** fame, made inputs like LABS popular among local Korean farmers. His system replaces conventional fertilisers.

By placing a microbe "trap" in our kitchen, we can gather many sorts of microbes, not only lactic acid bacteria. Everyone's blend of microbes will be different.
Then, when we add milk, the LAB will out-compete the others, leaving us with just LAB.

TERMS
LAB: Lactic Acid Bacteria
LABS: LAB Serum/Solution

Some Uses Of LABS:

☐ ***Suppresses plant pathogens/diseases***; prevents damping off disease; improves seed germination.

☐ ***Adds beneficial microbes***; helps treat fungal problems.

☐ ***Treats odours***, eg in composting or livestock; in horse, chicken or pig pens.

☐ ***Aids in the faster breakdown of materials and release of nutrients***, eg in composts (allowing worms to consume it faster); also may be added to compost/castings teas.

☐ ***Pets & Farm Animals:*** Used as a probiotic supplement in the diet of pets and farm animals - aids in digestion, building healthy gut bacteria, and building up the immune systems.

☐ ***Used as a seed soaker*** - it increases germination rates and suppresses damping off disease (Pythium.)

☐ ***As an occasional garden amendment;*** applied to the leaves or soil, compost.

☐ Many many more exist - just look to professor Google.

Ingredients:

To make approx. 2 litres of LABS:

- ☐ 4 litres whole milk (fresh or long life)
- ☐ 1.5 cups white rice (375ml) white rice, but not “quick rice”
- ☐ 3 cups water (750 ml) - dechlorinated/rain/spring/bottled water

Equipment:

- ☐ strainer
- ☐ chux cloth or similar
- ☐ slotted wooden spoon if available
- ☐ large wide mouthed glass or plastic container (6 litres size)
- ☐ smaller wide mouth glass or plastic container if available
- ☐ rubber bands for each container top
- ☐ chux dishwashing cloth for each container top or similar
- ☐ As far as possible, use wooden utensils (not steel) and use glass or plastic containers (not steel.)

Method:

1. Make The Rice Wash (To Collect The Bacteria In)

This process makes a collection liquid for the naturally occurring LAB bacteria (and others.)

☐ ***Soak one and a half cups of WHITE rice*** in one and a half cups of clean dechlorinated water - rain water, spring water, filtered water etc - for 20 minutes; stirring occasionally.
(I used TAP water with no issues.)

☐ ***Remembering to keep the water***, strain the rice and rinse it off with another 375 ml water. (You can now cook & eat the rice yourself so it is not wasted, or use it to collect IMO.)

☐ ***Put the rice wash in a jar or container * and cover with a dry chux cloth*** and secure it with rubber bands.

**** The container should be a wide mouthed one. And only fill the container 2/3 full, so there is plenty of air.***

2. WAIT - (Collect) For 2-3 Days - The Bacteria Builds Up In The Rice Wash

This process collects the BACTERIA..

☐ ***Leave for 2-3 days***, storing at room temperature, out of the sun/light.

☐ When it is ready, ***it should smell a little sweet***.

You may see that a "mat" of semi solid material forms, floating on the top of the liquid in the jar.
The rice wash liquid has been "collecting" all sorts of bacteria, including LAB, from the air around you.
The starches in the rice wash are feeding them and allowing their populations to grow.

3. Add Milk To The Rice Wash

This process allows the LAB bacteria to increase in the solution.
We are adding MILK to the rice wash liquid that is laden with MANY different bacteria.
The environment of the MILK allows the LAB to thrive, outcompeting others, as in yoghurt making etc.

☐ ***Keep the lower layer*** and discard the matted layer in the rice wash. Either skim off the top if you can, with a slotted spoon etc - or just carefully pour it out, through the chux cloth and strainer.

☐ ***Mix one part rice wash with 10 parts of milk***.
For our 2 litres of finished LABS we need to use 375ml rice wash to 3750 ml milk.
(I used whole, store bought milk with no issues. You can use long life milk too.)

☐ ***Cover with the dry chux cloth again*** and secure with rubber bands.

4. WAIT 2-4 Days For Curds & Whey To Separate

My liquid wasn't really yellow, but that is still OK.
The time it takes depends on the temperature.
Mine separated on the 3rd day in a mild winter.
It was "normal" one day, the next it was separated.

☐ ***Leave it for 2-4 days***, storing at room temp, out of the sun/light (it may take longer in cold weather)

☐ ***Do not shake or stir it***.

☐ ***The liquid will eventually separate*** into a solid part (curds) and a yellowish part (whey) below it - there may also be a small solids layer below the liquid LABS (see image on P1.)

5. NEXT STEP: Remove The LABS (The Whey) & Discard The Curds

The bottom, liquid part is what we want - the LABS or "whey".
Whereas the solid we do not want is called the curds.

The LABS should look like coconut water - not milky.
The clearer it is, the longer it should last.

☐ ***Scoop out and discard the solids (curds)*** - slice the curd layer into 4 pieces and remove it with a slotted spoon or similar. Feed these to chickens or put in the compost pile/worm bin, in moderation in small bins. The curds smell a little like a light brie cheese.

☐ ***STRAIN the remaining liquid,*** so that the LABS has no solids left in it.
(I used three thicknesses of Chux dishwashing cloths, over a colander.)

6. STORAGE Of The LABS:

The LABS should smell "sweet". If it smells bad, discard it into the compost and make a new batch.

☐ ***Store the LABS*** in bottles with an open top - use chux and a rubber band.
(It needs to be open to allow excess gases to escape).

☐ ***If not to be used within a week***, get extra storage by adding sugar to it, then storing it in a cool dark place, or in the fridge:

☐ ***With sugar added, it can be stored*** in a cool dark place for 2-3 months OR It may be stored in the fridge for up to 6-12 months: mix approx. a kg of brown sugar into each litre of LABS.

☐ ***Keep loosely capped*** to allow gases to escape as it ferments further.

7. To Dilute It For Use:

☐ ***Depending on the use, but commonly dilute 1 part LABS to 500-1000 parts water*** and spray or pour on.

Eg. 1 to 2 teaspoons (5-10ml) to 5 litres of water.

☐ It is suggested that application to worm farms or compost heaps may be limited to once per month, so that the LAB don't outcompete other microorganisms in the systems.

A label you can use, or copy from to make your own:

L.A.B.S.

(Lactic Acid Bacterial Serum)

Directions:

Mix 1-2 teaspoon LABS (5-10ml) into 5 litres of water.

Apply as appropriate.

Uses:

- ☐ ***Compost*: Breaks materials down quicker / pre-composts.**
  Use in worm farms & compost once per month.
- ☐ ***Plants*: Nutrients become available quicker.**
  Suppresses fungal/plant pathogen/diseases.
  Adds beneficial microbes.
- ☐ ***Pets & Animals*: Probiotic for animal gut / immune.**
- ☐ **Suppresses ODOURS (urine, manure, bedding etc.)**

LABS should smell "sweet".

If it SMELLS bad, discard it into the compost.
Keep LOOSELY CAPPED for gases to escape.

Date MADE: _____

BEST BEFORE: _____

If sugar added, up to 2-3 months on shelf / 6-12 months refrigerated.