The sourdough paramedic
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How to start a new sourdough. Make dough with 1% baker’s yeast and preferably whole (wheat, rye) flour and ferment for 24h. Boil or filter chlorinated water before using it for the first refreshment (that is not necessary for subsequent refreshments when the sourdough is active). Keep in mind that competitive sourdough lactobacilli are adapted to rodents, swine, insects, or plants – if addition of rat poop is not to your liking, try onion peels, mother of vinegar, sauerkraut, raisins or other plant material to the first batch of sourdough to speed up development of a competitive sourdough microbiota. After about a dozen refreshments (~ 10 - 20 % inoculum of sourdough to fresh flour), the dough is very likely to have the right mixture of yeast, homo- and heterofermentative lactobacilli.

Alternatively, ask a friend who maintains an active sourdough. I started a sourdough with baker’s yeast in March 2005 and maintained it active ever since.

Microbiota: ~ 10^7 yeasts and 10^9 lactobacilli /g dough. The numbers can vary a bit depending on how the starter is maintained.

Typical sourdoughs contain one or more of the following: Lactobacillus species, Companilactobacillus species (which like to keep company with other lactobacilli), Lactoplantibacillus species (which originate from plants), Limosilactobacillus species (slimy lactobacilli which produce polysaccharides that improve bread freshness), Fructilactobacillus species (which like to eat fructose), or Levilactobacillus species (bread leavening lactobacilli). What ends up in your sourdough depends on how your sourdough is propagated – the organisms in the sourdough will adapt to your style of baking and managing the sourdough.

Storage: Mix ripe but not too old sourdough with flour to a thick paste and store refrigerated in a tightly sealed jar or screw cap glass. If possible, maintain CO2 overpressure during storage. Keeps for at least 8 weeks. Yeast suffer when the sourdough is stored frozen but will come back after a couple of refreshments.

Preparation: Frequent (at least 3) refreshments of refrigerated sourdough are important to get the little cuties back into shape after the long rest in the refrigerator. Mix ~1 part sourdough, 3 parts flour and 3 parts water and incubate at ambient temperature. At 28°C (summer), the dough will take 6 – 8 h to develop, it will take longer (12 - 16 h) at lower temperatures. Avoid repeated refreshments at > 30°C as the yeasts can’t keep up. At a temperature of less than 15°C, fermentation is very slow. The first refreshments can be made in very small volumes (10 – 30 g of flour) as sourdough multiplies very quickly.

Baking: Always refresh sourdough 2 - 3 times to get the culture up and going. Keep a part of the last sourdough prior to baking to make a fresh sourdough stock for refrigerated storage.

- one stage sourdough: Acidify 10 - 30 % of the flour overnight, add baker’s yeast to bread dough for leavening. The more whole flour is used in the bread formula, the more flour can be fermented. For bread that is made exclusively from white flour, use 10 – 20% of the flour in the sourdough.

- three stage sourdough. Ferment 10% of the flour overnight, ferment 30% of the flour in a second stage. Make the final (bread) dough when the 2nd stage shows visible signs of activity (3 – 4h depending on temperature and flour used). This active sourdough will enable to reduce the addition of baker’s yeast substantially, or to omit it entirely. Without baker’s yeast, the final proof takes about 3 h.

If things go sideways, turn black, or if the sourdough is a bit too slow. Give the sourdough some exercise – make a couple or a dozen refreshments while throwing the old sourdough away (make small volumes). Possibly, add some plant material to introduce a few new lactobacilli that may be helpful.