

TTA determination

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TTA

The content of total acids produced during fermentation is determined by the titration of 10g of sourdough (diluted with 90g of water distilled) using a 0.1N NaOH solution upon reaching a value of pH of 8.4 (Decock and Cappelle, 2005 and Gobbetti et al., 2010).

Equipment

- pH meter
- Scales with resolution at least 0.1g. If making up and standardising 0.1N NaOH, 0.01g resolution required
- 0.1N NaOH (see below) stored in a small squeeze bottle with small hole dispense, eg reused contact lens solution bottle
- Clear plastic sample container
- Small blender, pref multi-speed
- PPE - eye and skin protection as appropriate

Method

- 90g di h₂O in blender + 10g dough torn into a few pieces.
- Run on lowest speed for 45s
- pour into tared tall clear plastic measuring container. Record weight - if weight is w, tta value = titre x 100/w
- tare NaOH bottle
- squirt 0.1N NaOH into sample with stirring until pH 8.4
- Stir again and check pH again - can bounce back
- note weight of NaOH used. Divide by x to give tta

Making 0.1N NaOH

0.1N NaOH solution is expensive to buy in the UK - no doubt because it is considered corrosive and the now high cost of shipping liquids.

Therefore I made up my own.

Ideally, once made up it needs to be standardised, either by titration against citric acid or oxalic acid. Oxalic acid is (somewhat) poisonous.

[This website](#) tells you how to make up NaOH solution (I made up 100ml with 0.4g NaOH) and standardise it with oxalic acid solution.

Alternatively [this website](#) tells you how to standardise NaOH against citric acid.

In practice I found that when I made up 0.1N NaOH from high quality food grade NaOH, the actual strength was 0.1N. When I used technical grade, ie drain cleaner, the strength was 0.085N. So if using food grade NaOH, you can probably dispense with standardisation.