



VISITING THE PURATOS SOURDOUGH LIBRARY

Words: DANIELLE ELLIS

Photos: PURATOS and DANIELLE ELLIS

The Scottish Bakers organise several learning journeys each year. I joined one such tour to St Vith in Belgium to visit Puratos.

We were to spend time at the food additive company's development kitchen and discover its products. But the part of the journey that particularly intrigued me was a visit to Puratos's Sourdough Library.

The [Puratos Center for Bread Flavour](#) site is modern, nestled on one side by a golf course. Across the road is one of the factories where the company makes its sourdough products.

The test kitchen was full of the sort of equipment that every baker would dream of—the latest ovens, dividers, shapers and more. But the thing that really interested me sat at one side through it, behind a very ordinary looking door: the Sourdough Library.

I couldn't quite imagine what such a library would look like and how the exhibits would be kept and displayed.

THE SOURDOUGH LIBRARY

The Sourdough Library is a beautiful room. Look up and you might believe you are in a forest with leafy trees above you. Along the walls are glass fronted cases, and inside them large jars each labelled with a number. Nothing else.

The Library was opened in 2013 and is a non-profit initiative to collect sourdoughs from all over the world, to protect the sourdoughs' diversity and to increase knowledge about them. It is the result of a long-term research program between Puratos and Professor Marco Gobbetti of the University of Bari.

In an initial study, where Gobbetti mapped and conserved sourdoughs from around Italy, the scientist and his team studied the micro-organisms of 19 different regional types of bread:

"We found a large diversity of mainly lactic acid bacteria among the sourdoughs," Gobbetti explains. "We related such differences to the environmental parameters and the type of flour used [...] such microbial diversity should be considered a sort of fingerprint for the uniqueness of each sourdough."

Some of the sourdoughs had just a couple of types of lactic acid bacteria, others had many, contributing to each bread's distinctive flavour. In fact, Scientists have discovered more than 700 different yeasts and more than 1500 lactic acid bacteria during this research.



Sourdough: *"A mixture of flour (wheat, rye, rice, etc...) and water, fermented by lactic acid bacteria and yeasts, which are responsible for its capacity to leaven a dough, while contemporarily and unavoidably acidifying it" (Gobbetti, 1998. Trends Food Sci. Technol.)*

Many of the sourdoughs studied formed the core of the Puratos collection in the Sourdough Library. The collection now stands at more than 72 different samples and with approximately 20 new samples added each year, Puratos sees no limit on the numbers of starters the library can accommodate.

The library opened with samples from Italy, Greece, Hungary and the USA. Since then, samples from Italy, France, USA, Mexico, Australia, UK, Portugal, the Netherlands, Greece, Hungary and China have been added. There are four sourdoughs currently under evaluation from Poland, Ireland, Spain and United Arab Emirates.

Starters can always be provided to the original bakery should a disaster occur—actually, following a fire at one of the bakeries, the sample in the collection already enabled the bakery to continue as before.



DEFINITIONS OF SOURDOUGH BY PROFESSOR MARCO GOBBETTI

Type I sourdough: Traditional sourdoughs whose microorganisms are kept metabolically active through daily refreshments (three-stage protocol is applied relying on three refreshments over 24 h).

Type II sourdough: Sourdoughs obtained through a unique fermentation step of 15–20 h followed by storage for many days. These sourdoughs are liquid, and they are produced at the industrial level using bioreactors or tanks at a con-

trolled temperature. Type II sourdoughs are used for dough acidification and as dough improvers.

Type III sourdough: Type II liquid sourdoughs, which are dried and stabilized after preparation, are named type III. They are mainly used at the industrial level as acidifier supplements and aroma carriers.

Puratos makes and sells types II and III.
Source: "[History of Bread](#)" (Oct 2013)

STARTER STORAGE AND MAINTENANCE

In the library, fresh sourdough samples are stored in special glass jars at a constant temperature of 4°C (29°F). Samples are also frozen and stored at -80°C in 4 different locations. The sourdoughs are refreshed to a set timetable, much longer than you or I might do with our sourdoughs, using the correct flour for that particular sample.

It is mainly the origin of the starter (original bakery environment and the flour used for starting the sourdough) that defines the bacteria in the sourdough. To preserve that bacteria, Puratos considers it essential to continue using the original baker's flour.

Avoiding cross-contamination is also crucial. That's why, when doing the refreshments, all the materials are cleaned and treated with alcohol before usage and in between each batch of sourdough.

But does the sourdough stay the same? Every year, three sourdough samples from the library are randomly chosen to be analysed and compared with the initial results of the original sample collected. Until now, there have been no significant differences.

For each sourdough starter in the library, Puratos stores the following information:

- The starter's story.
- The type of "back slapping" required. Back slapping is the addition of flour and water to refresh the sourdough.
- The type of flour used.
- Kneading time and at what temperature
- How long it should be left to prove and the baking temperature.

As I looked through the documentation, I was fascinated to see the variety of temperatures and regimes.





Three samples were provided for us to smell, touch and taste. It was remarkable how different they were in texture and appearance. I can assure you the smells were quite different too! One of the three samples in the photograph is from Eric Kayser. He presented it to the library on opening day!

DONATE YOUR STARTER

I'm sure you'll now be wondering whether you can take part!

Bakers can submit a sourdough by making contact with their local Puratos office. After completing a checklist, Puratos evaluates the submitted form and then informs the baker whether the sourdough was accepted or rejected. If a sourdough is rejected, it may be that the sourdough was made with a kind of flour or comes from a region already present in the library.

Each donator is given a certificate showing that his or her sourdough is included in the library. Number 59 was in preparation as we visited.

If you do contribute, let us know and if you do get the chance, visit the library. It is fascinating!

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