FOOD

SOLEIL **on a plate**

Milk, wine, foie gras, meat, chips and tomatoes, these foods all have one thing in common: they have all ended up in the SOLEIL's light. Using X-rays, UV or infrared rays, studies are based on analyses at several different scales, from atoms to tissues, in these samples that we consume every day.

There is no shortage of examples: studies on the structure of wheat proteins implicated in allergies to this cereal; following the oxidation of a fat emulsion, the major cause of loss of food quality; tensile tests on the walls of wheat grains, removed in white flour but with high nutritional potential; identifying on the molecular level mechanisms responsible for the astringency sensation caused by tasting a glass of wine or under-ripe fruit ; characterization of the protein component of foie gras to prevent them melting during cooking; analysis of the heat denaturation of muscle fibers to preserve the tenderness of meat, etc. The aim of all this research is to both improve the taste, nutritional qualities or food preservation, as well as the methods for preparing processed products, but also how to optimize these processes to reflect the consumption patterns of the future.

On the DISCO beamline, scientists from INRA (Montpellier and Nantes) are collecting images of maize stem walls.

On the menu at SOLEIL

1 **Since 2006,** a special partnership binds INRA (Institut National de Recherche Agronomique) and SOLEIL, on agriculture, food and environment topics.

2 **The DISCO, SMIS, SWING, DESIRS and PROXIMA1** beamlines are the most involved in these studies, covering almost the whole range of wavelengths and techniques available at SOLEIL.

3 **Soon,** with the long Nanoscopium and ANATOMIX beamlines, this range of techniques will be complemented by nanoscale X-ray imaging.

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