

Natural rubber expertise

Expertises on composition, structure and properties of latex & natural rubber

ISSUE

Our core expertise is the study of the determinants of the quality of natural rubber. The biological origin of natural rubber gives it unequalled characteristics but more variable than those of its synthetic competitors. This variability is, in particular, linked to very diverse production conditions. The standard quality criteria, defined for most of them in the 1960s, are no longer sufficient to predict natural rubber's behavior during the second transformation (mixing, shaping, vulcanization) which is increasingly automated and therefore less tolerant to variability. The main scientific objective of our activities is therefore to better understand this variability and to identify more relevant new predictive criteria. This new knowledge will also make it possible to target new treatments (physical, thermal and/or (bio)chemical-biological processes) to reduce the variability of natural rubber quality. Depending on the needs we can offer services of service analysis, technical expertise, training but also collaborative research projects.

JOINT LABORATORY IN THAILAND

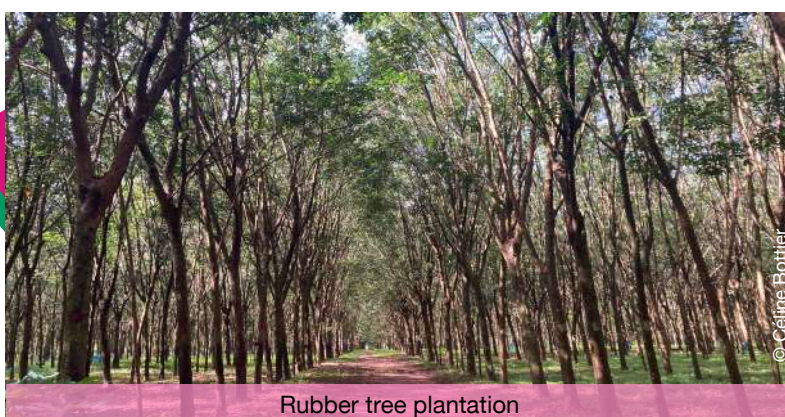
Kasetsart University/Cirad founded a joint laboratory in 2002 named Laboratory of Biochemistry and Technology of Natural Rubber (LBTNR). This laboratory provides a joint expertise on lipid composition of natural rubber.

EN BREF

- CIRAD is the French agricultural
- research and international
- cooperation organisation working
- for the sustainable development
- of tropical and Mediterranean
- regions.
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- ▶ 1 650 staff
- ▶ 800 researchers
- ▶ 200 partner institutions



Latex pouring into the cup



Rubber tree plantation



Tapping



SERVICE ANALYSIS

These services concern the physico-chemical and biochemical characterization of natural rubber for a better understanding of the variability and the elaboration of its quality. Our expertise is based on a platform that brings together a large number of conventional analytical equipment for standard analyses (ISO2000 and SMR standards). It is accredited by the International Rubber Association.

It also relies on high-tech tools for characterizing the structure (SEC-MALS chromatography, IR-TF in ATR mode, etc...) and composition of non-isoprene compounds of latex and natural rubber (mainly lipids, proteins and minerals by GC-MS, HPLC-UV-MS, SDS-PAGE, 2D-IEF, ICP-AES).



Plastimeter

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SEC-MALS chromatography

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TRAINING COURSE OFFER. "NATURAL RUBBER: THE SECRETS OF A BIO-BASED POLYMER"

This training course is made by rubber experts and specialists in chemistry, biochemistry and biotechnology. Training courses focus on the understanding of natural rubber variability. They provide agronomic and post-harvest tools to control this variability.



These services are backed by experts who regularly visit rubber tree fields (plantations and factories) to conduct experiments in partnership.



Visual inspection of a freshly laminated rubber sheet by a tapper

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SETTING UP A COLLABORATIVE RESEARCH PROJECTS

On thematic of shared interest that require ambitious experiments and an integrated approach, we can propose the construction of a collaborative research project governed by a research agreement in partnership possibly involving colleagues from other research units (agronomy, socio-economic, genetic improvement, etc.).

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