

LABORATOIRE DE CHIMIE ORGANIQUE ET PHYSIQUE APPLIQUEE

LABORATORY OF APPLIED ORGANIC CHEMISTRY AND APPLIED PHYSICS

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Brief presentation

The laboratory is multi-field where work together chemists, physicists and botanists on the following topics:

- tincture plants, rich in aromatic tannins and plants for their essential oils;
- heat transfers, passive air-conditioning by natural convection, study of the physical properties urban waste and environment.

General description

Burkina Faso, is a sahelian and cattle-rearing country where the dyeing and the tanning occupy a significant place on the level of the craftsmen and industry. The aromatic plants are rather known for their medicinal and food properties. The various scientific studies thus allow an adequate use of those while preserving the biodiversity.

The problems of environment are considered in collaboration with the University of Perpignan in France: waste and simulation on the natural convection within the framework of the improvement of thermal comfort in the buildings.

The bibliographical review followed by some analyses in the laboratory (Nacro and Millogo-Rasolodimby [1]) revealed 128 tincture plants and rich in tannins. Kouda [2-3] through its work, led to the results of sifting of 19 species distributed in 12 families according to their

content gallic tannin. The species which have a content ranging between 1.4 and 8.7 are most interesting.

One finds nearly 90 aromatic species in Burkina. They are characterized by the fact that they exhale fragrances. The aromates are fresh or dry plants having a sweet-smell or a particularly marked taste. One speaks rather about spices when it is about a seasoning. Oils are required for industry, pharmacy and medicine known as soft.

The chemical composition of oils of 3 species of the *Cymbopogon* kind was analyzed by Djibo [4] et al. That of *Lippia multiflora* is rich in thymol and its acetate should find applications in phytotherapy, as for that of the *Eucalyptus citrodora* which contains the *citronelle* [5].

For 3 years a study of the physical characteristics of oils of *Mentha piperita* [6], *Cymbopogon* [7] and the *Eucalyptus* [8] has been undertaken with measurements of density and optics (optical activity and refractive index) carried out using an interferential method.

Structure of the laboratory and results

One counts various teams with in the laboratory: 5 chemists, 2 physicists and 2 botanists working on the problems of Environment: ecology and energy and having material for the oil extractions, the optical measurements and of computation software [9].

4 students are working in a PhD program in the laboratory (physics and chemistry).

Various results obtained are published. Knowing the properties of the aromatic plants and with tannins, one explains their better uses in traditional pharmacopeia. Some plants of the family of *Verbenacea* in Burkina Faso are used first of all like trees of reforestation, decorative plants and for the wood of heating (Millogo-Rasolodimby et al [10]), a mean of fighting against the turning into a desert of the Sahel.

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