

## LES ACTIONS DE LA DGCD

DGDC'S ACTIVITIES

## DE ACTIVITEITEN VAN DE DGOS

LAS ACTIVIDADES DEL DGCD

### Development cooperation prize

The Development Cooperation Prize is annual incentive prize - financed by the Belgian Development Cooperation (DGDC) and organized by the Royal Museum for Central Africa - for students and young researchers, from Belgium or developing countries, whatever their discipline. The prize is awarded to scientific works that contribute significantly to knowledge that can be applied to development in the South. Sustainable development is to be their principal aim and poverty alleviation a priority. The prizes are attributed to Bachelor's and Master's theses, postgraduate papers, Ph.D. theses, or publications in scientific journals.

In the course of the years of the prize existence, the fields represented among the participants has remained more or less stable: the majority of files represent the exact sciences - with a very large share originating from the agricultural and applied biological sciences, followed by the human sciences and biomedical and veterinary sciences.

The prize is granted to maximum 14 students and 6 researchers and consists of an award of 1,250 € for students and 2,500 € for young researchers. Since 1998 the awards have been handed over by the Minister for Development Cooperation during a ceremony in the Royal Museum for Central Africa. The laureates from abroad are invited to Belgium especially for this occasion. Many use their stay in Belgium to establish or renew contacts with the Belgian academia in their fields of interest.

Three abstracts regarding the accomplishment of laureates from Cameroon and Burkina Faso awarded in 2006 are presented below.

### 'Improving the Biological Properties of the Fenugreek galactomannan (*Trigonella foenum graecum* L.)'

William Dakam\*

The study carried out by Mr W. Dakam fits into the framework of the twofold research into the valorization and validation of natural resources in relation to public health. Fenugreek seeds (*Trigonella foenum graecum* L., Fabaceae) are known for their cholesterol-reducing and lipid-reducing properties, among other things.

The aim of the study (for his DEA dissertation) is to analyse the enhanced effect of the fenugreek galactomannan by adding third constituents like sodium hydrogenocarbonate and albumin. These are shown to be able to increase the physiological effects by maximizing the cholesterol-reducing action or by increasing the ability to reduce body weight. The soluble fibres, of the type found in fenugreek seeds, and proteins can act together to improve the lipid profile and reduce the complications of diabetes.

Mr Dakam concludes his paper by demonstrating the synergetic effects, the methods of action of which will be the subject of further studies, in particular with other types of proteins and other salts.

The experiments, using force-fed rats, were carried out using various investigations both biological and biochemical such as the levels of HDL and LDL cholesterol and plasma triglycerides. The validity of the results has also been examined using variance analysis.

The paper by Mr W. Dakam is highly relevant to development work as it addresses an aspect of the fight against obesity – once a problem limited to wealthy countries but now also a public-health issue in developing countries – and as such is an initial step towards the use of natural resources at a reasonable cost, backed up by research. This fits into the framework of research into effective products to combat obesity – via a better formulation – with improved local vegetable fibres.

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## **'The effect of the planting date on the African rice gall midge, *Orseolia Oryzivora* H. & G., and its parasites on the rice-growing plain of Boulbi, Burkina Faso.'**

Mopougouni Honoré Tankoano\*\*

With this study, Mr Tankoano endeavours to understand the conditions in which the African rice gall midge (*Orseolia oryzae*) develops and to find long-term solutions to the damage caused by this destructive pest. Rice production plays a major role in the fight against hunger and poverty in Africa in that this food-grain provides food for the population on the one hand and financial revenue for the producers on the other. Conditions in Burkina Faso are favourable for the development of the African rice gall midge, and this results in major damage to cultivation. It is therefore vital that methods are put in place for the long-term limitation of the damage caused by this destructive pest. In this context, Mr Tankoano shows that a long-term fight against the African rice gall midge could be feasible in the conditions that exist in Burkina Faso. In his study he clearly demonstrates that by carefully choosing the date of sowing and by encouraging the development of 2 parasitoids (*Platygaster diplosisae* and *Aprostocetus procerae*), which would launch a biological attack on the destructive pest, it would be possible to reach satisfactory levels of control in the fight against the African rice gall midge. What makes this work so interesting is the very fact that it has revealed these basic means for a long-term fight against the African rice gall midge. These methods do not require a high level of technicality, which makes them easily accessible to the poor populations, and they are respectful of the environment. At a time when the sustainable management of natural resources has become a central theme in development perspectives, Mr Tankoano's study is particularly well placed since he produces useable data in a strategy to fight the destructive rice gall midge without, however, resorting to methods that pollute the environment or are dangerous for the health of workers and consumers. This is an important contribution to development work within a perspective of increasing food resources and one which is highly suited to the local conditions of Burkina Faso.

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## **'Phytochemical Study of Two Medicinal Plants of Cameroon: *Garcinia smeathmannii* and *Garcinia polyantha* (Guttiferae)/Evaluation of their Biological Activity and some Chemical Transformations'**

Justin Komguem\*\*\*

This work can stand any international comparison. It attests to the comparatively higher level of the University of Yaoundé in Cameroon, and to the strong qualities of Mr Komguem. This doctoral thesis describes the phytochemical study and evaluation of the biological activity of the bark of two plant species of the *Garcinia* genus used in traditional medicine in Cameroon. The plants in question are *Garcinia smeathmannii* and *Garcinia polyantha*.

The bibliography has been very thoroughly prepared. The extraction procedures used, the chromatographic purification and isolation of over twenty natural products with diverse chemical structures, point to a thorough physicochemical knowledge and experience. Semisynthesis was used to prepare derivatives of several of these natural substances. The various spectroscopic techniques employed in the structural clarification of all these molecules led to the identification of more than ten new products.

The biological evaluation of both extracts and pure components points among other things to the presence of an antibacterial, antioxydative or antileishmania activity. Moreover, these plants exhibited no acute or chronic toxicity.

The thesis is the result of enormous effort. It is clearly the fruit of a permanent collaboration with institutions in other countries in which knowledge and experience were exchanged. External technical support may have been called on, which of course in no way detracts from its merits, rather the contrary.

The results of this work are perhaps not to be translated immediately into actual applications in the interest of public health; relevance should rather be sought in the high level of scientific potential contained in it. This is undeniably important for the future of Cameroon.

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