

# The UST Research Center for the Natural Sciences

Mafel C. Ysrael

**History.** The University of Santo Tomas Research Center was established on March 31, 1962. The Center was conceived in commemoration of the 350th anniversary of the university's founding.

In the first few years of operation, the Center had no facilities of its own; researchers had to be content with facilities available in their respective college laboratories - an inconvenient setup. Suitable quarters were soon constructed on the fourth floor of the Clinical Division of the UST Hospital. The laboratories were later equipped for chemical and biological work.

**Past Project Selection.** The areas of research were divided into the Cultural Sciences - Ecclesiastical, Juridico-Social, Humanities, Psychological; and the Experimental Sciences - Chemical, Physico-Mathematical, Biological, Pharmaceutical, and Engineering-Architecture. The scope of project selection was wide. There were no limits, as long as a project was presumed to bring new knowledge and lead to something of value for the common good.

Through the years, projects gradually focused on the paramedical field: medicine, pharmacy, organic chemistry, microbiology, and botany. These were short-term, contractual, individual projects - arrangements that proved to be disadvantageous in terms of financing, equipment, time, and turnover of trained personnel. They were soon replaced by long-term projects aimed at one direction - natural products research. The Center is now committed to the study of biologically active natural products from Philippine plants and mineral resources for medical, agricultural, and pharmaceutical applications.

**Current setup.** Other research units were recently established, like the Social Research Center, the Institute for Development Education, and the Economic Research Center. Because the humanities were no longer the concern of the UST Research Center, the University renamed it UST Research Center for the Natural Sciences (USTRCNS) in February, 1986.

The USTRCNS aims to encourage research among faculty members in the basic and applied natural sciences; integrate research and teaching activities; utilize indigenous materials and methods for application in medical and health needs; gather, collate, and disseminate technical information in the biological and physical sciences; and coordinate with other internal and external agencies in

research programs of national or international character.

The Center maintains as research staff a multidisciplinary team composed of medical doctors, botanists, chemists, biochemists, microbiologists, pharmacists, and pharmacologists, all with academic rank. These faculty-researchers have privileges which other faculty members do not enjoy. They receive the full compensation equivalent to 24 units while having a minimum actual teaching load of only 6 units. Those pursuing graduate studies have the opportunity to arrange projects (satellites of the major research problem) that will fulfill the requirements for their degrees.

Although the Center is open to all faculty members who wish to do research, there are certain requirements to qualify for the position of full-time researcher with limited academic load. The faculty member should have the sufficient academic preparation, the willingness, and the natural disposition for research work.

**Funding.** Projects at the Center were initially funded by the Benavides Foundation. Presently, support comes from UST funds as well as from external funding agencies such as the National Research Council of the Philippines, the National Science Technology Authority, the Philippine Council for Health Research and Development, the International Foundation for Science (Sweden), UNESCO, and the International Development Program (Australia). From these funds, the researchers are also given travel grants for training or for attending seminar-workshops in their respective fields of specialization. With the help of these agencies, the Center has slowly built up its facilities and acquired equipment for phytochemical, microbiological, and pharmacological work including facilities for plant collection and preservation.

**Completed projects and awards.** Thirty-two projects have been completed, and several have been awarded honors by prestigious groups like the Manila Medical Society, Philippine Medical Association, and Abbott Laboratories (Phils). Some of these projects are: The Daphnia Experiment, for Detection of Malignant Tissues (1987); An Herbal Remedy Against Skin Ailment: A Radical Approach (1980-1981); Novalichin, An Antifungal Antibio-

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The author is an Assistant Researcher for Pharmacology in the Biological Section of the USTRCNS.

otic (1972-1973).

Aside from these distinctions in basic research, the Center has earned recognition in applied research. Successful clinical trials of the crude drug of *Ipomoea muricata* (Tonkin seeds) against certain skin ailments led to a patent granted by the Patent Office of the Philippines on November 20, 1981.

The USTRCNS has been designated by UNESCO as the National Point of Contact (NPC) of the UNESCO Regional Network for the Chemistry of Natural Products. It also has been designated by the UNESCO Division of Scientific Research and Higher Education to be the center for biological screening services. The biological division of the USTRCNS has been specifically assigned to do selected pharmacological and toxicological determinations and microbiological assays for chemical compounds prepared in laboratories from developing countries. A cooperative venture with the Department of Medicinal Plants, Ministry of Forests and Soils Conservation of Nepal was established.

**Current projects.** The Center is presently conducting three long-term projects: cancer detection using human chorionic gonadotropin (HCG), medicinal plants, and antibiotic production from local raw materials.

Immunoassay of HCG from blood and urine has been used as basis for the early detection of cancer. The present research seeks ways to differentiate HCG in malignancy and in pregnancy with respect to biochemical and immunological properties, and to work on radiolabelling of the anti-HCG immunological reagent injected to patients to localize cancer sites or metastasis.

The research on Philippine medicinal plants is a long-range multidisciplinary program that involves phytochemical and biological screening of plants known to have biological activity, and the isolation and characterization of the bioactive components. The scientific basis for use of these plants in primary health care would have to be established; limited clinical trials could be done. This program offers good training possibilities for natural products researchers. It has focused on the anti-tuberculous principles and other anti-microbial constituents, the analgesic, anti-inflammatory and antipyretic principles, and the alkaloids.

The fermentation, isolation, and chemical characterization of antibiotics from microorganisms derived from different soil samples is the third



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research project. Aside from this, a microbial study entitled "Antimicrobial Susceptibility Patterns of Bacterial Isolates from the UST Hospital from 1986 to 1990" has recently been approved. These programs will keep the Center busy for the next few years.

**Publication.** The Acta Manilana was published as the official organ of the Center in August, 1965, and it has, since then, been coming out regularly as an annual publication. It features investigations done at the Center and guest articles from other researchers. The Acta Manilana now enjoys a high prestige among local and foreign publications.

**The USTRCNS vision.** The University has a commitment to carry out its research function. It believes that research integrated into the academic life will help build an efficient and competent faculty and train students in the methods of science and research. This would mean a better breed of graduates and better-trained scientific manpower for the country. For as long as the university keeps this commitment, the USTRCNS will thrive. ❖