

OTTO RICHARD GOTTLIEB, FATHER OF BRAZILIAN PHYTOCHEMISTRY

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ABSTRACT

Otto R. Gottlieb was born in Brno, Czechoslovakia on August 31, 1920 and passed away in Rio de Janeiro, Brazil on June 19, 2011. He immigrated to Brazil in 1939 and did his undergraduate studies at the Universidade do Brasil, where he obtained a degree in industrial chemistry in 1945. He was awarded a doctorate in chemistry by the Universidade Federal Rural do Rio de Janeiro in 1966. He worked in industry and held positions at several institutes and universities in Brazil. His research work dealt mainly with phytochemistry, natural and medicinal products and biodiversity. He was research advisor of approximately 150 students and is responsible for approximately 700 scientific publications. Otto R. Gottlieb may be considered the father of Brazilian Phytochemistry.

KEY WORDS: Phytochemistry, Natural Products, Chemistry in Brazil,
History of Science

RESUMO

Otto R. Gottlieb nasceu em Brno, Checoslováquia em 31 de Agosto de 1920 e faleceu no Rio de Janeiro em 19 de Junho de 2011. Ele veio para o Brasil em 1939 e formou-se em Química Industrial pela Universidade do Brasil em 1945. Obteve o doutorado em química em 1966 na Universidade Federal Rural do Rio de Janeiro. Trabalhou na indústria e ocupou cargos em vários institutos e universidades no Brasil. Seu trabalho de pesquisa tratou principalmente de fitoquímica, produtos naturais e medicinais e biodiversidade. Orientou mais de 150 alunos de mestrado e doutorado e publicou aproximadamente 700 trabalhos científicos. Otto R. Gottlieb pode ser considerado o pai da Fitoquímica Brasileira.

PALAVRAS CHAVE: Fitoquímica, Produtos Naturais, Química no Brasil,
História da Ciência

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Otto Richard Gottlieb was born on August 31, 1920 in Brno, Moravia, Czechoslovakia (present day Czech Republic) and passed away in Rio de Janeiro, Brazil on June 19, 2011. He was buried in the Jewish Cemetery of Caju, Rio de Janeiro.

He lived in Brno up to the age of 16, completed primary school and began secondary school in Czechoslovakia and in 1936 when his family came to Brazil, he went to England together with his brother where they attended Badingham College. In 1939, sensing the coming of World War II, Otto R. Gottlieb came to Brazil and at the age of 21 opted for the Brazilian Citizenship. His maternal grandfather was exporting coffee from Rio de Janeiro and Vitoria since 1880 and his mother was from Petropolis, state of Rio de Janeiro.

His paternal grandfather was the owner of a porcelain factory in Czechoslovakia and his father was the factory chemist. In 1936, his father immigrated to Brazil and founded an industrial plant for the extraction of essential oils and raw materials for the perfume industry. Chemistry was really part of a family tradition.

In Brazil, he studied for two years at the Colégio Universitário, the best preparatory school of Rio de Janeiro and subsequently enrolled in the Escola Nacional de Química of the Universidade do Brasil. He obtained the Degree in Industrial Chemistry in 1945. For the following ten years he worked in the factory helping his father and performing all kinds of duties.



OTTO R. GOTTLIEB (1920-2011)

In 1955 Otto R. Gottlieb obtained a research grant from CNPq (Brazilian National Research Council) to pursue studies at the Instituto de Química Agrícola (Institute of Agricultural Chemistry) in Rio de Janeiro. It is there that Otto R. Gottlieb developed a strong interest for research in natural products chemistry, plant metabolism, medicinal chemistry and biodiversity. After his father closed his industrial plant in 1959, he began to dedicate himself almost exclusively to research. He gained important research experience at the Weizman Institute, Rehovot, Israel, University of Sheffield in England and the University of Indiana in the United States.

He obtained the Doctorate in Chemistry from the Universidade Federal Rural do Rio de Janeiro (Federal Rural University of Rio de Janeiro) in 1966.

Dr. Otto Richard Gottlieb held many positions at research institutes and universities all over Brazil. We shall mention only some of them. His former doctoral students and collaborators are to be found in practically all of the states of Brazil, most of them being involved in research and graduate programs in chemistry and pharmacy dealing mainly with natural products and medicinal chemistry. Otto R. Gottlieb himself was directly responsible for the establishment of a large number of graduate programs in chemistry and pharmacy throughout Brazil.

Among the research institutes, we mention the Instituto Nacional de Pesquisas da Amazônia (INPA) in Manaus and Fundação Instituto Oswaldo Cruz (FIOCRUZ), Rio de Janeiro.

Among the universities we mention Federal Rural University of Rio de Janeiro, University of Brasília, University of São Paulo, Federal University of Minas Gerais, Federal University of Pernambuco, Fluminense Federal University and the University of Hamburg, Germany.

Otto Richard Gottlieb was research advisor of approximately 150 graduate students. As we mentioned above, about half were at the master and the other half at the doctoral level. His research interests dealt mainly with phytochemistry, natural products, medicinal chemistry, plant metabolism, biodiversity and the development of new drugs.

Later in his life he began to devote much time, effort and attention to sustainability and preservation of the environment. Prof. Dr. Otto R. Gottlieb was fascinated by the chemical richness, biodiversity and ecosystems of the Amazon Forest. The accelerated destruction of the Amazon Rain Forest was for him comparable to the fire of Alexandria, Egypt and was destroying and burning the most valuable "library" of the world before it was read and its contents were known. For those that may be interested in the subject we mention a book in English: (*"CHEMISTRY OF THE AMAZON—Biodiversity, Natural Products and Environmental Issues"*, Peter R. Seidl, M.A. Kaplan and Otto R. Gottlieb, Eds., ACS Symposium Series 588, Washington, D.C., USA, 1995).

Prof. Dr. Otto Gottlieb is the author of approximately 700 scientific publications, holds two patents and is the author of five books, dealing with chemistry, ecology, plant metabolism, micromolecular evolution and biodiversity.

During his life, Prof. Dr. Otto Richard Gottlieb received a large number of prizes, medals and awards. He was the recipient of practically all awards given in science and chemistry in Brazil. We shall mention only a few: National Order of the Big Cross for Scientific Merit from the President of Brazil (1999), Pergamon Phytochemistry Prize (1992), Almirante Álvaro Alberto Prize of the Brazilian

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National Research Council (CNPq-1990), Fritz Feigl Prize in 1977 and the Freitas Machado Prize of the Escola Nacional de Química in 1943.

Otto Richard Gottlieb received the *Doctor Honoris Causa Degree* from more than a dozen Brazilian universities and from the University of Hamburg, Germany in 1988. He has been a member of the Brazilian Academy of Sciences (1966), Latin American Academy of Sciences (1983), New York Academy of Science (1984), International Academy of Wood Science (1989) and Third World Academy of Science (1999).

Prof. Dr. Otto Richard Gottlieb was indicated for the Nobel Prize in Chemistry on three occasions, in 1998, 1999 and 2000. Roald Hoffmann (Nobel Prize in Chemistry in 1981) was one of his nominees and made this comment "*Otto was a great scientist and is responsible for the formation of the school of natural products in Brazil. He had a great influence over Brazilian science*".

We first met Prof. Dr. Otto R. Gottlieb in 1978, a short time after our arrival in Brazil, coming at the invitation of the Brazilian Ministry of Education and Culture to help establish the Graduate Program in Physical Chemistry at the Federal University of Santa Catarina in Florianópolis.

Prior to our coming to Brazil, we asked a famous chemist with whom we had the privilege to collaborate at the University of California about chemists and the state of chemistry in this country of continental dimensions. He told us that he knew of two great and good chemists in Brazil. One of them was Ernesto Giesbrecht [Cf. L. G. Ionescu, "*Ernesto Giesbrecht, Great Chemical Educator and Father of Brazilian Inorganic Chemistry*", *South. Braz. J. Chem*, 4(4), 1-8, 1996].

The other was Otto Richard Gottlieb. At our personal invitation Prof. Dr. Otto R. Gottlieb visited and gave seminars at the new graduate programs in chemistry at the Federal University of Santa Catarina, Florianópolis and the Federal University of Rio Grande do Sul, Porto Alegre. We remember him as a somewhat formal and reserved person.

At the time of his visit in Florianópolis, Prof. Dr. Otto Gottlieb held faculty positions at the University of São Paulo, Federal Rural University of Rio de Janeiro and also worked in Manaus, Amazonas. During the second day of his visit we created courage and asked him why he worked in so many places. He looked at us seriously gave us a tap on the shoulder and said: "*Meu filho, no Brasil em quantos mais lugares você trabalha, melhor!*" (My son, in Brazil, the more places you work, the better). With our youthful enthusiasm and experience we thought for ourselves "crazy old man". About ten years later when we were working and faced widespread embezzlement of public funds and ecologic crimes at the Federal University of Rio Grande do Sul we remembered Professor Otto's advice and appreciated his wisdom.

Prof. Dr. Otto R. Gottlieb was a very influential person in scientific circles. When some members of the Chemistry Department in Florianópolis were contrary to hiring a chemist from a nearby Latin American country in order to help establish Research Program in medicinal chemistry in the College of Pharmacy, the message from Prof. Otto (via Brasília) was more like an ultimatum-either the organic chemist will be hired or the project funds will not be liberated. The chemist was hired and the medicinal chemistry program, under the leadership of Professor Calixto is today one of the best in the country.

During the years that followed we met with Prof. Dr. Otto R. Gottlieb mostly at the National Meetings of Associação Brasileira de Química (ABQ). He tried to be always present, for it was his original contact with ABQ the eventually led to his brilliant academic career. In the last years of his life he suffered from Parkinson's disease, but even so, he was there whenever possible.

Prof. Dr. Otto Richard Gottlieb may be truly considered the Father of Brazilian Phytochemistry.

For those that may want to learn more about Otto R. Gottlieb, we suggest reading his interview with Vera Rita da Costa "Na Torre de Marfim" published in *Ciência Hoje* in October of 1988.

REPRESENTATIVE PUBLICATIONS

For a complete list we suggest <http://lattes.cnpq.br/8174445528014427>

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