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Oil Palms and Other Oilseeds of the Amazon

Celestino Pesce



Translated and Edited by
Dennis V. Johnson

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Foreword to the English Language Edition

One of the most serious and widespread dietary problems plaguing many of the developing nations concerns the deficiency of edible oils and fats. Furthermore, in the industrialized countries each year sees more and more commercial need for these plant products, and their production often falls short of supplying the demand.

There are several ways in which these shortages may be overcome. Pasturage might be improved to produce more animal fats. More acreage of oil-yielding crop plants now under cultivation could be grown. Higher yielding strains of cultivated oil plants could be developed through selection, breeding and genetic manipulation. The Plant Kingdom might be combed for wholly new oil-yielding species capable of being domesticated and cultivated in plantations. All four of these methods are to a greater or lesser degree being practiced in various parts of the world. Perhaps, however, the greatest promise lies in the fourth method.

Botanists and agricultural specialists have been looking at the Plant Kingdom for new sources of fats and oils now for a long time. Recent research has led to the domestication of several new oil plants. Some are already in plantation production: e.g., *Simaruba glauca* D.C. (Simarubaceae), the acituno tree of Central America; and *Crambe abyssinica* Hochst. ex. R.E. Fries (Cruciferae), native to the northern part of Africa.

But many botanists believe that the potential offered by the Plant Kingdom has a far greater promise than has been realized. Of the estimated half million species of plants, the oil content and oil type of only a small percentage are known. The tropical regions of the world—especially the humid forested areas of difficult access, sparse populations and poorly studied floras—seem to offer unparalleled opportunities for productive exploration for new oleaginous plants.

One of the world's most promising regions for the search for new oil crop plants is the Amazon Basin. With an estimated 80,000 to 85,000 species of higher plants, this vast region of tropical rain forests—an area as extensive as the United States—is botanically still only imperfectly known. Yet it has given the world a number of economic plants of importance, some of which have drastically changed our ways of life: pineapple; cassava or the tapioca plant; cacao; coca (source of cocain); achiote (source of red dye for

margarine, cheeses, etc.); timbó (source of the biodegradable insecticide rotenone); the curare vine (from which the medically valuable alkaloid tubocurarine is obtained); and, of course, the Pará rubber tree (source of 98% of the world's natural rubber). This list does not include the numerous species still of minor importance that are locally exploited from either wild plants or from those semi-cultivated in home gardens, a notable proportion of which are oil-producing.

The Amazon flora seems to be inordinately rich in oil plants, yet technical attention commensurate with the extent of this wealth has lagged. Therefore, from the point of view of oleaginous plants, the Amazon holds an extremely high priority. This priority is not an assumption: it has been established by preliminary, though sporadic, research—investigations of botanical, ethnobotanical and phytochemical natures. But the literature on the Amazonian flora and its economic plants has long been difficult to find, since it is scattered in many obscure journals.

Now, at long last, the economic botany of the Amazon forests is beginning to command the attention of botanical institutions that hitherto have eschewed any investigations of a practical orientation. And ethnobotanical studies—tapping the knowledge of the properties of plants acquired over the centuries by the Indians—have made a very decided advance during the past several decades and promise to become increasingly valuable in intensification of the use of the vast flora of this last surviving tropical forest which has been inhabited for millenia by natives of a great diversity of tribes and cultures.

In 1941, there appeared in Belém, Brazil, a city at the mouth of the Amazon River, a most remarkable and significant book: Celestino Pesce's *Oleaginosas da Amazônia*. It was published by the Oficinas Gráficas da Revista da Veterinaria, but unfortunately it was poorly distributed. It did not find its way to the bookshops of the world nor even to the bookshops of Brazil's major cities.

When I was in Belém in the early 1940s as a research scientist on rubber, I chanced one day to be crossing the main plaza with one of my Brazilian agronomic colleagues. A peddler was passing out literature. Thinking that it was political or religious propaganda, I did not accept his offering; my colleague did. Upon sitting down at a sidewalk cafe for a cool drink, I noticed the title of the "pamphlet" in my colleague's hand. I went back and asked the peddler for two copies. I had them properly bound, and they have been one of the most prized additions to my personal library on Amazonian botany and a valuable asset in the Library of Economic Botany of the Harvard Botanical Museum. I have since learned how rare it is in American libraries, and our copies have been photo-duplicated on several occasions by institutions or specialists working on oleaginous plants.

Celestino Pesce wanted to contribute to Brazil's economic growth. Since he felt that the vast forests of the Amazon offered one of the best sources

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of commercially interesting crops, he concentrated on oil-rich plants of that area. He himself traveled extensively in the Brazilian Amazonia collecting specimens and had more material collected by reputable specialists; they were identified by competent botanists (such as the late scientists Drs. Jacques Huber and Adolpho Ducke); and many of the chemical analyses were performed by the British phytochemists Drs. R. Bolton and D.G. Herver of London.

The result of all of Pesce's interdisciplinary investigations led to a book in which more than 100 species and varieties of plants of the Amazon area are considered from their botanical, chemical and ethnobotanical aspects. Some of the plants analyzed have been locally utilized for their oil or fat content from wild stands. An appreciable number have not been exploited even by the native populations of the Amazon.

The great Amazon Basin, with approximately 16% of the world's flora, is without any question an untapped emporium of useful plants. Amongst the most urgently interesting and promising at this time in the world's development are the oleaginous species. It is, therefore, understandable why Pesce's book, with so much information not elsewhere available, should command such a position of priority in economic botany.

Pesce's book—in addition to its obscure place of publication and lack of dissemination—is written in Portuguese, a language not easily handled in many parts of the scientific world. An edition in English will greatly enhance the practical and scientific availability and value of the contents of this volume.

It is, consequently, not difficult to understand my personal enthusiasm for the appearance of Dr. Johnson's translation of *Oleaginosas da Amazônia*. Not only has Dr. Johnson, with his knowledge of Portuguese and his specialization in economic plants, done an admirable translation—a labour of love—but he has made available to a much wider audience a work of basic significance which will long be appreciated as a stimulating challenge to research into one of the most important categories of economic plant products for betterment of human living in the world.

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Photo: Margaret Parvill