

Medicinal Plants Are Object of Search in Mexican Expeditions

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Plant collecting in Mexico may be looked upon by some as out of the realm of duties of the College of Agriculture staff. Recently, however, development of cooperation between Arizona and her neighbor to the south has resulted in a greater interest in these resources.

Consequently, the College of Agriculture was willing and anxious to assist in any way possible when the College of Pharmacy pointed to the plants of Mexico which have been used empirically in the treatment of diseases as a tremendous unknown and undeveloped chapter in the medical history of the world.

Had Been Used for Ages

It was further suggested that even if these natural products had little actual therapeutic value, the fact that they had been used consistently by many generations justified a systematic investigation of these plants from a botanical, agricultural, and pharmaceutical standpoint. To this end a proposal was submitted through Regional "New Plants" Technical Committee to the New Crops Division of the U. S. Department of Agriculture which would make it possible to obtain information and samples of some of the plants commonly utilized as drugs.

In the proposal the recommendation was made that plant materials already under study in the pharmacy colleges of the western universities be gathered in more abundance, that species related to those under study be collected to extend our knowledge of these plant groups, and that new drug plants be brought under investigation. The proposal was looked upon with favor by the evaluating committee, and the project was activated in 1958.

Requests for materials were received from the Universities of Arizona, New Mexico, Utah, and Washington and the College of the Pacific. Solicitations ranged from a single species to anything in several plant families. All requests were checked in the University of Arizona Herbarium to determine availability of the plants as to localities and the seasons most favorable for collecting.

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Plans for Four Trips

After the herbarium information was tabulated, actual field work was planned. Four trips were considered: one in the spring and one in the fall of 1958 along the west coast of Mexico, one in the spring of 1959, along the central portion of the country, and one in 1960 to re-collect material which had been obtained on the earlier trips and had proven of interest.

The first trip afforded opportunity to make personal contacts with druggists and herb dealers. Markets were visited in several of the towns and many drug plants were purchased, but because of the large number of plants used for medicinal purposes, the purchases represented only a small sample of those reputed to have therapeutic properties. Roadside collections were made at mileage intervals or where requested plants were seen. Where available, plant materials were collected in quantity for the cancer screening tests.

Because the University of Arizona herbarium contains only a limited number of specimens from Mexico, the first trip was extended to Mexico City so that materials in the herbarium of the Instituto de Biologia might be examined. The additional information obtained from this larger herbarium made it easier to locate certain plants and also showed that some of the requested plants could be found only in regions far out of the proposed sphere of travel.

A Changed Country

The second trip was planned so as to be in the field after the summer rains, but before the summer flora had dried beyond the point of recognition. During the lapse of three months the aspect of the vegetation changed completely. What had been a roadside lined with flowering trees and shrubs in June was in October a roadside lined with vine covered trees. Morning glories (*Ipomoea sp.*) in white and all shades of pinks, purples, and blues were climbing to the tops of the tallest trees. Queen's Wreath (*Antigonon leptopus*) was abundant with its masses of pink flowers. Interspersed with these were various members of the gourd family with brightly colored fruits.

It was also determined from the information gathered at the herbarium in Mexico City that some of the specimens could be collected only in the high moun-

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fied to include a transect across the Sierra Madre Occidental. The travel southward was again along the west coast highway to Villa Union, a town a few miles south of Mazatlan, where the only east-west road which crosses the Sierra Madre Occidental joins the west coast highway. This road connects Durango with the west coast.

Although this trip was made in the early summer, the rains were late, and what had been green and flowering forests the previous year were now large areas covered with leafless spiny trees and shrubs. However, the vegetation along the road to Durango changed abruptly. The bare trees of the dry coastal plains gave way to broadleafed evergreens and finally to conifers. The scenery also changed from flat or rolling agricultural land to deep canyons and high mountains.

Plants Didn't Survive

On this trip many specimens were collected, but probably the most interesting botanically was *Datura ceratocaula* of the Jimsonweed group which had not been reported so far north in Mexico. Seeds were not available; therefore, an attempt was made to bring back young living plants, but because of transportation difficulties none survived.

With the intention of collecting among other things more material of *Datura*, especially *D. ceratocaula*, a fourth trip was made in June of 1960. Once again the rains were late, so it was necessary to go as far south as the vicinity of Mexico City to obtain specimens of the desired *Daturas* with mature seeds.

As a result of these trips, collections of about 20 species of plants were distributed to participating institutions. Included in the collections were representatives of the genus *Datura* and several genera of the Apocynum or Dogbane family for a study of the alkaloids they contain. Many species of *Chenopodium* of the Goosefoot family were gathered for further studies on their anti-helminthic properties. Collections of *Rauwolfia*, a plant recently discovered to contain a chemical which lowers blood pressure, were made to extend the studies searching for a relief from hypertension.

Specimens for Cancer Studies

In addition, several collections of miscellaneous plants were brought to the University of Arizona to be prepared for cancer screening tests. Although the final results of these tests are not yet available, several of the specimens submitted have created an interest by showing favorable reactions on certain types of tumors.