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Annual Report
October 1, 1978 - September 30, 1979

Economic Botany Laboratory
Plant Genetics and Germplasm Institute
Science and Education Administration
United States Department of Agriculture
Beltsville, Maryland 20705

Procurement of Samples for General Screening: A total of 1,751 three-pound samples were sent to RALTECH for preparation of extracts; they were from Arizona, Australia, Baja California, Brazil, California, China, Ecuador, Ghana, India, Jamaica, Kenya, Malaysia, Maryland, Mexico, Nevada, North Carolina, Oregon, Pakistan, Panama, Peru, Puerto Rico, South Africa, and Virginia.

Procurement of Confirmed Actives: 52 species of confirmed-active plants and special requests were accessioned and are listed on the attachments. The samples were from Australia, California, Costa Rica, Ghana, India, Jamaica, Kenya, Papua-New Guinea, Peru, Puerto Rico, New Zealand, Sri Lanka, and Thailand. Total weight was 11,429.75 pounds (excluding the super collections), of which 29% represented high-priority plants, 67% represented medium-priority plants, and 4% represented low-priority plants and special requests.

Distribution of Re-collections

	<u>No. of Samples</u>	<u>Total Wt. (lb)</u>	<u>Average Weight/Samples</u>
Dr. Ash	1	203.50	203.50
Dr. Cassady	23	3,905.75	169.82
Dr. Cole	1	564.00	564.00
Dr. Farnsworth	21	2,773.25	132.06
Dr. Gordon	7	785.00	112.14
Dr. Pettit	8	971.50	121.44
Dr. Powell	1	154.00	154.00
Dr. Sainsbury	1	210.50	210.50
Dr. Wall	8	1,862.25	232.78
TOTAL:	71	11,429.75	211.14

Procurement of Plant Material as Sources of Chemical Agents for Preclinical and/or Clinical Evaluation: 6,352 pounds of Heliotropium indicum were received from Ghana and sent to Dr. Boettner.

Harvesting of 20,800 Cephalotaxus harringtonia plants was begun in Oregon.

Other Activities: Small-scale field plantings of Tripterygium wilfordii were continued at the Glenn Dale U.S. Plant Introduction Station and at the Savannah U.S. Plant Introduction Station. A small experimental planting of Brucea antidysenterica was continued by Mr. A. J. W. Monkhouse of Brook Bond Liebig Kenya Ltd. in Kericho, Kenya. Maintenance of 500 plants of Maytenus buchananii was continued in Kenya.

The propagation of selected species for distribution and/or increase was continued at Glenn Dale. These species include Baccharis megapotamica, Brucea antidysenterica, Cephalotaxus harringtonia, Colchicum speciosum, Colubrina texensis, Maytenus buchananii, Putterlickia verrucosa, Taxus brevifolia and Tripterygium wilfordii.

EBL supplied germplasm of 16 species in 13 genera to NCI Contractors conducting tissue culture investigations. Dr. James P. Kutney received seedlings or rooted cuttings of Baccharis megapotamica, Brucea antidysenterica, Maytenus buchananii, Putterlickia verrucosa and Tripterygium wilfordii. Dr. Kutney also received seeds of Ba. megapotamica, Br. antidysenterica, Br. guineensis, M. buchananii, M. rothiana, and Taxus baccata. Dr. Masanara Misawa received seedlings, rooted cuttings or plants of Ba. megapotamica, Br. antidysenterica, Colchicum speciosum, M. buchananii, P. verrucosa, Ta. brevifolia and Tr. wilfordii. Dr. Misawa also received seeds of Ba. megapotamica, Br. antidysenterica, Br. guineensis, Caesalpinia gilliesii, Co. speciosum, Fagara zanthoxyloides, Heliotropium indicum, Holocantha emoryi, M. rothiana, Ochrosia coccinea, Ta. baccata, Ta. brevifolia, Thalictrum dasycarpum, and Tr. wilfordii.

EBL botanists conducted field work for general samples and re-collections in Puerto Rico, the Western U.S. and Mexico, Brazil, and in rain forest areas of Panama and Ecuador. U.S.D.A. imposed travel ceilings seriously hampered the planning and undertaking of field work by EBL botanists during the reporting period.

Steps have been taken to reduce the duplication of samples submitted for preliminary anticancer screening. This effort has resulted in a list of genera extensively screened or completed (GESOC), which has been combined with a computer generated list of species screened six or more times with no activity and/or species with confirmed anticancer activity, small samples of which are no longer wanted. With few exceptions, we will no longer accept samples of GESOC genera or samples of any of the six plus or active species. We refer to this negative compilation as the SLOP (species low on priority) list.

The SLOP list has been incorporated as an appendix to our "Agreement for Procurement of Plant Samples for General Screening" which is used as a basis for setting up purchase orders with subcontractors. This list, which eliminates an estimated 67,000 species, makes the collecting of general samples much more selective and costly and, additionally, requires the participation of a knowledgeable local botanist.

Floristic and phytogeographic studies were initiated on areas targeted for collection by EBL botanists to avoid duplication of general samples and to assure a high yield of genera and species new to the program.

Review and correction, as necessary, of the identification and nomenclature of plants previously screened was continued with emphasis on genera containing confirmed-active species.

Detailed studies on the distribution and abundance of high- and medium-priority confirmed actives were continued as a basis for collection.

EBL continued to maintain logs of materials shipped to the Sponsor's designated screening and fractionating facilities.

EBL continued to submit quarterly progress reports and monthly budget reports.

HIGH PRIORITY

<u>Plant Name & Family</u>	<u>PR-No.</u>	<u>Weight (lb.)</u>	<u>Plant Part(s)</u>	<u>Source</u>	<u>Chemist</u>
Ailanthus integrifolia (Simaroubaceae)	50452	192.00	sb	India	Farnsworth
Crinum amoenum (Amaryllidaceae)	50451	203.50	bu	India	Ash
Crotalaria anagyroides (Fabaceae)	51846	22.00	rt	Peru	Cassady
" " "	51847	115.00	ws-sb-tw-lf	"	"
Daphne cannabina (Thymelaeaceae)	50239	60.00	rt	India	Farnsworth
" " "	50240	72.00	st	"	"
" " "	50241	23.00	rt-st-lf	"	"
" " "	50455	18.00	tw-lf	"	"
Elaeocarpus dolichostylus (Elaeocarpaceae)	51424	145.00	sb	Papua- New Guinea	Farnsworth
Gardenia jovis-tonantis (Rubiaceae)	50608	497.00	ws-sb-tw	Kenya	Wall
Maytenus peduncularis (Celastraceae)	50232	21.00	ws-sb	South Africa	Gordon
Maytenus polyacantha (Celastraceae)	50233	32.00	ws-sb-tw-lf	South Africa	Gordon
Pericopsis mooniana (Fabaceae)	51365	390.00	sb	Sri Lanka	Farnsworth
" " "	51368	54.00	tw	"	"
Phyllanthus anisolobus (Euphorbiaceae)	51381	187.00	rt	Costa Rica	Pettit
Pinus sabiniana (Pinaceae)	51372	175.00	fr	California	Cassady
Putterlickia pyracantha (Celastraceae)	50234	493.00	tw-lf	South Africa	Gordon
Uvaria zeylanica (Annonaceae)	51373	<u>564.00</u>	rt	Sri Lanka	Cole
	TOTAL:	3,263.50			

MEDIUM PRIORITY

<u>Plant Name & Family</u>	<u>PR-No.</u>	<u>Weight (lb.)</u>	<u>Plant Part(s)</u>	<u>Source</u>	<u>Chemist</u>
<i>Anthocephalus chinensis</i> (Rubiaceae)	50949	210.50	lf	India	Sainsbury
<i>Aquilaria malaccensis</i> (Thymelaeaceae)	50606	310.50	sb	Thailand	Farnsworth
<i>Balanites aegyptiaca</i> (Zygophyllaceae)	50950	236.50	sd	Ghana	Pettit
<i>Cassytha filiformis</i> (Lauraceae)	50192	16.25	rt-st-lf-fl-fr	Papua- New Guinea	Wall
" " "	50663	283.00	rt-st-lf	Kenya	"
<i>Combretum caffrum</i> (Combretaceae)	50235	258.00	tw-lf-fr	South Africa	Wall
" " "	51376	61.00	tw-lf-fr	" "	Pettit
<i>Commiphora boiviniana</i> (Burseraceae)	50609	491.50	ws-sb-tw	Kenya	Wall
<i>Engelhardtia spicata</i> (Juglandaceae)	51519	154.00	tw-fr	India	Powell
<i>Goniothalamus giganteus</i> (Annonaceae)	50604	308.50	sb	Thailand	Cassady
<i>Helicteres isora</i> (Sterculiaceae)	51520	112.00	rt	India	Cassady
" " "	51570	108.00	fr	"	"
<i>Hernandia ovigera</i> (Hernandiaceae)	50359	5.50	sb	Papua- New Guinea	Wall
<i>Horkelia fusca</i> var. <i>pseudocapitata</i> (Rosaceae)	51896	191.00	rt-st-lf-fl-fr	California	Cassady
<i>Icacina senegalensis</i> (Icacinaceae)	50448	20.00	tw-lf-if	Ghana	Wall
<i>Maytenus heterophylla</i> (Celastraceae)	51378	21.00	ws-sb	South Africa	Gordon
" " "	51379	14.00	tw-lf-fr	" "	"
<i>Michelia doltsopa</i> (Magnoliaceae)	50456	30.00	fr	India	Cassady
<i>Micromelum minutum</i> (Rutaceae)	50358	7.75	tw-lf	Papua- New Guinea	Cassady

<u>Plant Name & Family</u>	<u>PR-No.</u>	<u>Weight (lb.)</u>	<u>Plant Part(s)</u>	<u>Source</u>	<u>Chemist</u>
Mollia williamsii (Tiliaceae)	50236	363.00	sb	Peru	Cassady
Nymanina capensis (Aitoniaceae)	51377	342.00	tw-lf-fr	South Africa	Cassady
Ostodes paniculata (Euphorbiaceae)	50454	35.00	st-tw-lf	India	Farnsworth
" " "	51038	58.00	st	"	"
" " "	51039	39.00	st-fr	"	"
Parsonsia straminea (Apocynaceae)	50603	300.00	tw-lf	Australia	Farnsworth
Phoenix reclinata (Arecaceae)	50610	291.00	ws-sb	Kenya	Wall
Pimelea prostrata (Thymelaeaceae)	51848	103.00	sb-st-tw-lf-fl	New Zealand	Pettit
" " "	51849	91.00	sb-st-tw-lf-fl	" "	"
" " "	51850	32.00	sb-st-tw-lf-fl	" "	"
" " "	51815	16.00	sb-st-tw-lf-fl	" "	"
Piptocoma antillana (Asteraceae)	50714	245.00	st-lf	Puerto Rico	Pettit
Podocarpus purdieanus (Podocarpaceae)	51996	245.00	sb	Jamaica	Cassady
Podocarpus wallichianus (Podocarpaceae)	50605	322.00	sb	Thailand	Cassady
Rauvolfia densiflora (Apocynaceae)	50457	23.25	st	India	Farnsworth
Rhus javanica (Anacardiaceae)	50362	53.50	st	India	Cassady
" " "	50453	127.00	st	"	"
" " "	51410	50.00	st	"	"
Sansevieria hyacinthoides (Agavaceae)	50114	45.00	wr-rb	South Africa	Farnsworth
Streblus asper (Moraceae)	50607	316.50	sb	Thailand	Farnsworth
Strephonema pseudocola (Combretaceae)	50449	340.00	sb	Ghana	Cassady
Tapirira guianensis (Anacardiaceae)	51894	185.00	sb	Peru	Cassady

<u>Plant Name & Family</u>	<u>PR-No.</u>	<u>Weight (lb.)</u>	<u>Plant Part(s)</u>	<u>Source</u>	<u>Chemist</u>
Tectona grandis (Verbenaceae)	50713	106.00	sb-tw	Puerto Rico	Cassady
Trichadenia zeylanica (Flacourtiaceae)	51374	270.00	sb	Sri Lanka	Farnsworth
" " "	51375	93.00	tw	"	"
Trichilia maynasiana (Meliaceae)	50720	172.00	lf	Peru	Cassady
Uapaca togoensis (Euphorbiaceae)	50447	310.00	sb	Ghana	Cassady
Zamia debilis (Cycadaceae)	50715	178.00	rt-st	Puerto Rico	Farnsworth
" " "	50716	50.00	lf	" "	"
	TOTAL:	7,640.25			

LOW PRIORITY & SPECIAL REQUESTS

<u>Plant Name & Family</u>	<u>PR-No.</u>	<u>Weight (lb.)</u>	<u>Plant Part(s)</u>	<u>Source</u>	<u>Chemist</u>
Capsicum fuscoviolaceum (Solanaceae)	51380	71.00	st	Costa Rica	Cassady
Maytenus buchananii (Celastraceae)	51066	105.00	ws-sb-tw-lf	Kenya	Gordon
" " "	51067	99.00	ws-sb-tw-lf	"	"
Miconia humilis (Melastomataceae)	51382	150.00	st	Costa Rica	Cassady
Petchia ceylanica (Apocynaceae)	51366	<u>101.00</u>	st-tw	Sri Lanka	Farnsworth
	TOTAL:	526.00			