



OF UNITED STATES  
DEPARTMENT OF  
AGRICULTURE

BELTSVILLE AGRICULTURAL RESEARCH CENTER  
BELTSVILLE, MARYLAND 20705

July 15, 1977

Subject: Rough Cost Estimate for Laboratory Botanist to Collect M & H  
Plants from Tanzania

To: R. E. Perdue, Jr., Chief  
Medicinal Plant Resources Laboratory

Attached is a schedule of costs to conduct field work in Tanzania. The total estimate of \$12,800 does not include transportation and shipping of plant material.

Some costs were based on the following:

1. Per diem - \$40.00/day in Dar-es-Salaam  
\$22.00 elsewhere  
\$20.00/day for Stephen in Dar-es-Salaam  
\$10.00/day for Stephen in Tanga  
\$ 5.00/day for Stephen elsewhere
2. Vehicle - \$20.00/day plus \$.45/mile

The major expense is vehicle rental. Using a VW bus, 20 laborers could be hauled to a collection site. As a daily average, 150-250 pounds of dry weight roots, stembark, twigs or herbaceous plants can be collected.\* To obtain the 300-pound requirement, two days were allotted for each of 21 samples. If only one day was devoted to each sample, the total cost could be reduced by \$4,000.00. The estimated daily field cost (excluding the botanist's salary) ranges from \$105.00 to \$140.00.

Time was not allotted for bulb and fruit collections. The only practical way to obtain such collections is to purchase samples on a dollar/pound basis. To rely on a 20-man labor crew to collect 300 pounds of Hypoxis obtusa would probably take two or more weeks. This also applies to fruits of Macaranga, Acacia, Parinari and Tephrosia. I have assumed that these samples could be purchased from other Africans within the time used for more practical collections requiring botanical supervision.

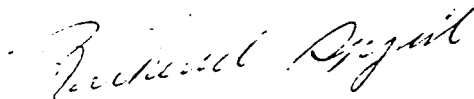
Also attached is a list of needed M and H plants. Locality data for some species may be required, thus, I have added three days for Kew, London. Most species listed can be found in the coastal region, but this does not mean that they are abundant there. The "X" indicates whether the species occurs in the coastal region, southern highlands and/or other specific areas. I have assumed

\*For stem collections, 500 pounds can be obtained in a day.

that most samples will first have been collected from the southern highlands, but some species, like Chenopodium procerum, will probably have to be later collected from the Usambaras. The coastal region here represents the Usambara Mountains and a 50-mile radius within Dar-es-Salaam. Some of the plants needed are based on general samples supplied by Mr. Mwasumbi.

The reason for many active species occurring in the Usambara Mountains is because coastal Tanzania is a notable refugium in tropical Africa. The coastal forests are not only represented by many widespread African species, but include numerous endemics, some of which are monotypic genera in families like the Celastraceae and Annonaceae. Working in these very rich forests also means one must take extra care in identifying the active species.

The "other" areas not specified can be treated as optional. For example, Tabernaemontana ventricosa occurs in the Usambara Mountains, but it may not be common there. However, we now know that T. ventricosa is abundant in Lake Manyara National Park. But, it will cost a minimum of \$1,000 to obtain a sample from Lake Manyara - 60% of this cost due to travel expenses. Visits to the "other" areas were not included in overall cost estimate.



Richard W. Spjut, Botanist  
Medicinal Plant Resources Laboratory

cc:

A. S. Barclay

COSTS

	<u>Days</u>	<u>Per diem</u>	<u>Travel (Vehicle)</u>	<u>Mileage</u>	<u>Total</u>
Beltsville - Dar-es-Salaam via London & return	3	\$ 72.00	\$1800.00	--	\$1872.00
Kew. London	3	\$156.00	\$ 20.00	--	\$ 176.00
Dar-es-Salaam (Preparations & Final Arrangements)	12	\$480.00	\$ 220.00	\$ 108.00	\$ 808.00
Travel to Southern Highlands	2	\$ 44.00	\$ 40.00	\$ 225.00	\$ 309.00
Work in Southern Highlands	42	\$924.00	\$ 840.00	\$1228.00	\$2992.00
Travel to Dar-es-Salaam	2	\$ 44.00	\$ 40.00	\$ 225.00	\$ 309.00
Work in Dar-es-Salaam	11	\$440.00	\$ 220.00	\$ 234.00	\$ 894.00
Dar-es-Salaam to Tanga	1	\$ 22.00	\$ 20.00	\$ 77.00	\$ 119.00
Work in Tanga	20	\$440.00	\$ 400.00	\$ 450.00	\$1290.00
Tanga to Dar-es-Salaam	1	\$ 22.00	\$ 20.00	\$ 77.00	\$119.00
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SUBTOTAL	97				\$8888.00

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Labor - \$25/day.....	\$ 1800.00
Stephen's salary - \$5.00/day.....	450.00
Stephen's per diem.....	960.00
Stephen's travel.....	150.00
Excess baggage.....	500.00
Miscellaneous.....	500.00
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TOTAL.....	\$ 3910.00
	+ 8888.00
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GRAND TOTAL.....	\$12,800.00

PLANTS AND LOCATIONS

67 - 99% Probable

<u>Species</u>	<u>Coastal Region</u>	<u>S. Highland</u>	<u>Other</u>
<i>Acalypha stuhlmannii</i> - pl	X	X	
<i>Afrocrania volkensii</i> - sb	X	X	
<i>Agauria salicifolia</i> - sb	X	X	
<i>Gnidia kraussiana</i> - pl		X	
<i>Hypoestes verticillaris</i> - pl	X	X	
<i>Excoecaria bussei</i> - sb	X		
<i>Maprounea africana</i> - rt	X		
<i>Milletia oblata</i> subsp. <i>intermedia</i> - st	X	X	
<i>Monanthotaxis buchananii</i> - tw	X		
<i>Phoenix reclinata</i> - st-lf	X	?	X
<i>Psorospermum febrifugum</i> - rt	X	X	
<i>Tabernaemontana ventricosa</i> - rt, ws-sb	X		X
<i>Uvaria kirkii</i> - tw-lf	X		
<i>Warburgia ugandensis</i> - sb	X		X
<i>Ximenia caffra</i> - ws-sb	X	X	
<i>Bridelia brideliifolia</i> - rt		X	

50% Probable

<i>Acacia mearnsii</i> - fr	X		
<i>Hypoxis obtusa</i> - tu		X	
<i>Parinari curatellifolia</i> - fr	X	X	X
<i>Peddiea fischeri</i> - rt	X		

PLANTS AND LOCATIONS Continued:

50% Probable Continued

<u>Species</u>	<u>Coastal Region</u>	<u>S. Highland</u>	<u>Other</u>
Tephrosia nyikensis - fr		X	
Gardenia jovis-tonantis - tw	X		
Macaranga kilimandscharica - fr	X	X	
Euphorbia candelabrum - rt	X		X

1 - 33% Probable

Aeschynomene stolzii - lf		X	
Chenopodium procerum - pl	X	X	
Strophanthus courmontii - ws-sb	X		
Strophanthus kombe - sd	X		

Unknown

Bridelia niedenzui - rt, lf	X	X	
Bersama rosea - rt		X	
Fagara spp. - rt, sb		X	
Combretum sp. - sb		X	