

OF UNITED STATES  
DEPARTMENT OF  
AGRICULTUREBELTSVILLE AGRICULTURAL RESEARCH CENTER  
BELTSVILLE, MARYLAND 20705

March 23, 1978

Subject: New Cost Estimate for Field Work in Tanzania - Based on Plants Listed in Revised Foreign Want List Dated November 15, 1977.

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

The previous cost estimate to conduct field work in Tanzania was based on only those plants active from Kenya and Tanzania. This new cost estimate is based on any plant active from Africa which is available in Tanzania. However, from M. Suffness' recent revision of our Foreign Want List, many species were eliminated.

Species not considered in the previous estimate are: Mammea africana (active from Ghana), Rothmannia urcellifromis (active from Ghana), Podocarpus gracilior (active from Ethiopia), Dracaena afromontana (a new active from Kenya), and Dalbergia lactea (a new active from Kenya).

Species eliminated are: Gnidia kraussiana, Maprounea africana, Millettia oblata, Ximenia caffra, Acacia mearnsii, Psorospermum febrifugum, Euphorbia candelabrum, Hypoestes verticillata, Periploca linearifolia and Tabernaemontana holstii.

Also plant parts and priorities have changed for some species. The ws-sb was substituted for rt under Tabernaemontana ventricosa and lf was substituted for tw-lf under Uvaria kirkii. Chenopodium procerum was reduced from high priority to medium priority, making this collection more feasible.

Plant collections were assigned to one of three categories (1) Collections that require botanical supervision of labor (2) Collections that are not practical to obtain through routine employment of labor but can be purchased, and (3) Excluded Collections - collections that appear to be too costly or almost impossible.

Collections That Require Botanical Supervision - Table 1. A total of 21 species and 6,900 pounds of plant parts were recorded. About 19-20 species are available in the Coastal Districts and 12 species are available in the Southern Highlands. The total probable collections number 14 for the coast and 7 for the highlands. If field work was first to take place in the Coastal District, it was estimated that 4,000 pounds of samples would be obtained representing 14 species. Four additional collections might be obtained from the Southern Highlands bringing the total for both areas to 18 species and 5,500 pounds. This requires an estimated 58 days of botanical supervision in the field.

Additional Collections That Might Be Purchased - Table 2. In 1973, 100-150 Africans collected plants of Hypoxis ssp. Samples were purchased at 20 cents (Tanzania money) per kilo (fresh weight). Purchasing 200 pounds (if available) from a large number of Africans requires about two days time. Purchas-

ing samples are economical when the entire plant is needed and it can easily be recognized. Fruits of some species, like Parinari, are also easily identified.

#### Excluded Species

Aeschynomene stolzii (Fabaceae) lf, KB-M: 300 pounds of leaves seem impossible.

Bersoma rosea (Melianthaceae) rt, KB-H: Possibly an endangered species.

Bridelia niedenzui (Euphorbiaceae) rt-lf, KB-M: Very little information was found on this species. I also question its status. Further consideration could be given at Kew.

Hibiscus aponeurus (Malvaceae) rt, KB-M: Roots are impossible to obtain in any sizeable quantity.

Macaranga kilimandscharica (Euphorbiaceae) fr, KB-M: Although this species is a common tree and likely to be in fruit during the later part of the dry season, the tiny fruits are not easily accessible. The tree is straight-boled and the nearest branch is usually 30 or more feet above ground. The best tree climbers I have seen are the Giriamas at Jilore, Kenya. Elsewhere, the natives seem incapable of climbing trees. Cutting the trees down is one possibility, but many are likely to fall across the road. Even if we were to cut the trees down, I feel that we would be lucky to obtain 25 pounds in one day.

Peddiea fischeri (Thymeleaceae) rt PS-M: This small arborescent shrub is expected to be only of occasional occurrence in the Usambara Mts. If sterile, it may be difficult to positively identify, especially from P. volkensis which also is occasionally present. Three hundred pounds of roots seem impractical.

Psychotria bagshawei (Rubiaceae) ws-sb, PS-H: Possibly an endangered species, not available in Tanzania.

Tephrosia nyikensis (Fabaceae) fr (minus sd), KB-M: Earlier it was thought that this species might be purchased. I am uncertain whether the fruits of this Tephrosia can be separated or identified from five or more other Tephrosia ssp. available at Mufindi. Also, a literature review does not reveal any indication that this species is common or abundant.

#### Costs Cost estimates were based on the following:

Per diem - \$42.00 per day in Dar-es-Salaam  
 \$22.00 per day elsewhere in Tanzania  
 \$10.00 per day for an assistant along the coast  
 \$ 5.00 per day for an assistant elsewhere

Vehicle - \$20.00/day plus \$.45/mile

Mileage - Reconnaissance - 100 miles/day  
Collecting - 75 miles/day  
Dar-es-Salaam - 20 miles/day

Labor - 7-8 shillings/day/man or about \$1.00/day/man

20 Field Laborers plus 8 Drying Laborers = \$28.00/day  
28x60 days = \$1,736.00

10 Laborers for completion of Drying x 19 days = \$190.00  
Total Labor Cost = \$1,926.00

Salary for assistant - \$5.00/day, 620.00

Per diem for assistant - \$10.00/day in the coastal districts, \$790.  
- \$ 5.00/day in the southern highlands, \$175.

Total - \$1,585.00

Miscellaneous - includes purchase of tools and gasoline (over \$1.00 per gallon), \$1,000.00.

The total cost as outlined in Table 3 is about \$16,447.00 for 5,500 - 6,000 pounds of samples representing 18 - 20 species (from \$2.75 - \$3.00 per pound). Two additional days each were added to the Coastal Districts and Southern Highlands for purchasing of plant samples.

Richard W. Spjut, Botanist  
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TABLE 1

## SUMMARY OF AVAILABILITY OF ACTIVE PLANTS IN THE COASTAL DISTRICTS AND SOUTHERN HIGHLANDS, TANZANIA

Collections Required			Coastal Districts			Southern Highlands		
Species (Family)	Plant Part	Weight	Prob- ability	Weight	Time (Days)	Prob- ability	Weight	Time (Days)
<u>Acalypha stuhlmannii</u> (Euphorbiaceae) KB-M	pl	300	67-90%	200	4.5	67-90%	200	4.5
<u>Afrocrania volkensii</u> (Cornaceae) KB-M	sb	300	90-99%	300	3.5	67-90%	300	3.5
<u>Aguaria salicifolia</u> (Ericaceae) KB-M	sb	300	90-99%	300	3.5	90-99%	300	3.5
<u>Begonia meyer-johannis</u> (Begoniaceae) KB-M	pl	300	67-90%	300	3.5	67-90%	300	3.5
<u>Bridelia brideliifolia</u> (Euphorbiaceae) KB-H	rt	500		Not Available		67-90%	500	7.0
<u>Chenopodium procerum</u> (Chenopodiaceae) PS-M	pl	300	50%	300	2.5	50%	--	--
<u>Commiphora boiviniana</u> (Burseraceae) KB-M	tw	300	50%	100	2.0		Not Available	
<u>Dalbergia lactea</u> (Fabaceae) KB-M	sb	300	67-90%	300	5.5	50%	--	--
<u>Dracaena afromontana</u> (Agavaceae) KB-M	st	300	?	?	?	50%	300	1.0
<u>Excoecaria bussei</u> (Euphorbiaceae) PS-M	sb	300	67-90%	300	3.0	50%	--	--
<u>Gardenia jovis-tonantis</u> (Rubiaceae) H	tw	500	50%	500	4.0	50%	--	--
<u>Mammea africana</u> (Clusiaceae) KB-M	sb	300	50%	100	2.0		Not Available	
<u>Monathotaxis buchananii</u> (Annonaceae) PS-M	tw	300	67-90%	100	2.0		Not Available	



TABLE 2

ADDITIONAL COLLECTIONS THAT ARE IMPRACTICAL TO OBTAIN THROUGH EMPLOYMENT OF LABOR BUT MIGHT BE PURCHASED

Collections Required			Coastal Districts			Southern Highlands		
Species (Family)	Plant Part	Weight	Prob- ability	Weight	Time (Days)	Prob- ability	Weight	Time (Days)
<u>Hypoxis obtusa</u> (Hypoxidaceae) PS-M	tu	200	50%	100	2.0	50%	100	2.0
<u>Parinari curatellifolia</u> (Chrysobalanaceae) PS-M	fr	300	50%	300	2.0	67-90%	300	2.0
<u>Physalis peruviana</u> (Solanaceae) PS-M	st-lf-fr	300	50%	300	2.0	50%	300	2.0

TABLE 3

COSTS					
	<u>Days</u>	<u>Per diem</u>	<u>Travel</u>	<u>Mileage</u>	<u>Total</u>
AIRFARE via London & return	3	\$ 72.00	\$1,800.00	--	\$1,872.00
Kew, England	3	\$ 189.00	\$ 20.00	--	\$ 209.00
PREPARATIONS at Dar-es-Salaam	7	\$ 294.00	\$ 140.00	\$ 63.00	\$ 497.00
WORK IN THE COASTAL DISTRICTS					
Travel to Tanga	1	\$ 22.00	\$ 20.00	\$ 77.00	\$ 119.00
Reconnaissance	4	\$ 88.00	\$ 80.00	\$ 180.00	\$ 348.00
Travel to Lushota	1	\$ 22.00	\$ 20.00	\$ 18.00	\$ 60.00
Reconnaissance	4	\$ 88.00	\$ 80.00	\$ 180.00	\$ 348.00
Collecting	44	\$ 968.00	\$ 880.00	\$1,485.00	\$3,333.00
Drying	14	\$ 308.00	\$ 280.00	--	\$ 588.00
Days of rest	5	\$ 110.00	\$ 100.00	--	\$ 210.00
Return to Dar.	1	\$ 22.00	\$ 20.00	\$ 77.00	\$ 119.00
Arrangements	5	\$ 210.00	\$ 100.00	\$ 45.00	\$ 355.00
WORK IN THE SOUTHERN HIGHLANDS					
Travel to Mufindi	2	\$ 44.00	\$ 40.00	\$ 225.00	\$ 309.00
Reconnaissance	4	\$ 88.00	\$ 80.00	\$ 180.00	\$ 348.00
Collecting	13	\$ 286.00	\$ 260.00	\$ 438.75	\$ 984.75
Drying	5	\$ 110.00	\$ 100.00	\$ --	\$ 210.00
Days of rest	2	\$ 44.00	\$ 40.00	\$ --	\$ 84.00
Return to Dar.	2	\$ 44.00	\$ 40.00	\$ 225.00	\$ 309.00
FINAL ARRANGEMENTS	<u>5</u>	\$ 210.00	\$ 100.00	\$ 45.00	<u>\$ 355.00</u>
SUBTOTAL	130				\$10,867.00
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Labor.....			\$1926 00		
Salary & Per diem for Assistant.....			\$1,585.00		
Shipping from Tanga & Mufindi to Dar.....			\$ 400.00		
Excess baggage.....			\$ 500.00		
Miscellaneous.....			\$1,000.00		
			<u>\$5,411.00</u>		
TOTAL.....					\$16,278.00