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Wet Season Collection of Edible Wild Fruits in Three Regions of Ghana

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Abstract: Edible wild fruit trees which are in fruits during the wet season were collected in three regions of Ghana. Villages and towns bordering forest reserves were targeted for the collection of edible wild fruits. Interviews, group discussions and structured questionnaires were the methods used to get information on the edible wild fruits and their locations. Sixteen accessions of edible wild fruits of which 13 were of different species were collected from the 3 Regions. Four accessions were collected from Central Region and 6 accessions each were from Ashanti and Brong-Ahafo Regions. The habit of the fruit plants was found to be mostly trees, followed by shrubs and then climbers. Most of the fruit plants were found on farmers' fields with the rest found in forests or fallow lands. The location of the fruit plants in the 3 Regions traversed latitude 05°N to 07°N and longitude 1°W to 3°W.

Key words: Edible, wild, fruits, wet, season, forest

INTRODUCTION

Studies have shown that Ghana is endowed with diverse indigenous edible fruit trees (Boateng *et al.*, 2005). These fruit trees have not received the needed attention from researchers. Nonetheless the fruits are enjoyed by people when in season. The popular ones among these fruits like *Chrysophyllum albidum*, *Vitex doniana*, *Irvingia gabonensis* and *Dacryodes klaineana* have markets in both rural and urban areas. Some of the fruits have received some form of domestication and are grown for income and nutrition.

Indigenous fruits could play a great role in the rural economy of West and Central Africa (Leakey *et al.*, 2003). Naylor *et al.* (2004) in a study found that some orphan crops like tef, indigenous vegetables and fruits tend to be locally important but little attention is given to these by public or private investment. *Strychnos spinosa*, a fruit tree indigenous to tropical and sub-tropical Africa, has been introduced into Israel as a potential new commercial crop (Yaron *et al.*, 2003).

The potential of edible wild fruits can be harnessed directly or indirectly (Osman *et al.*, 1997). These potentials include the use as new fruit trees, multipurpose trees, rootstocks and sources of germplasm for breeding to improve the present cultivated fruits. Most of these fruit trees can be used in agro-forestry systems.

Tchiegang *et al.* (1999) reported that five wild fruits; *Ammona senegalensis*, *Syzygium guineense*, *Vitex madiensis*, *Vitex doniana* and *Ximenia americana* were found to contain higher Fe contents than oranges and grapefruits. The five fruits were rich in sugars but relatively poor in vitamin C.

Indigenous edible wild fruits are enjoyed by people especially those in the rural areas. Some of the fruits like *Chrysophyllum albidum* and *Vitex doniana*, when in season are sold in both the rural and urban markets. Unfortunately most of these fruits are not researched into. To do effective domestication, cultivation and commercialization of these plants, they have to be collected, germinated, conserved and the plants studied.

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Although most indigenous edible wild fruits get matured and ripen in the dry season, quite a substantial number of them fruit in the wet season (June-September). It was to capture edible wild fruit tree species that fruit during the wet season that a collection trip was organized in August 2005. The trip covered the forest areas of 3 Regions of Ghana namely, Central, Ashanti and Brong-Ahafo.

MATERIALS AND METHODS

A collecting expedition for edible wild fruits was undertaken in August 2005 in Central, Ashanti and Brong-Ahafo Regions of Ghana to collect edible wild fruits that are in season during the wet season (Fig. 1).

Collection of edible wild fruits and nuts was undertaken in identified towns and villages bordering forest reserves and other considerably large forests in the Ashanti, Central and Brong-Ahafo regions

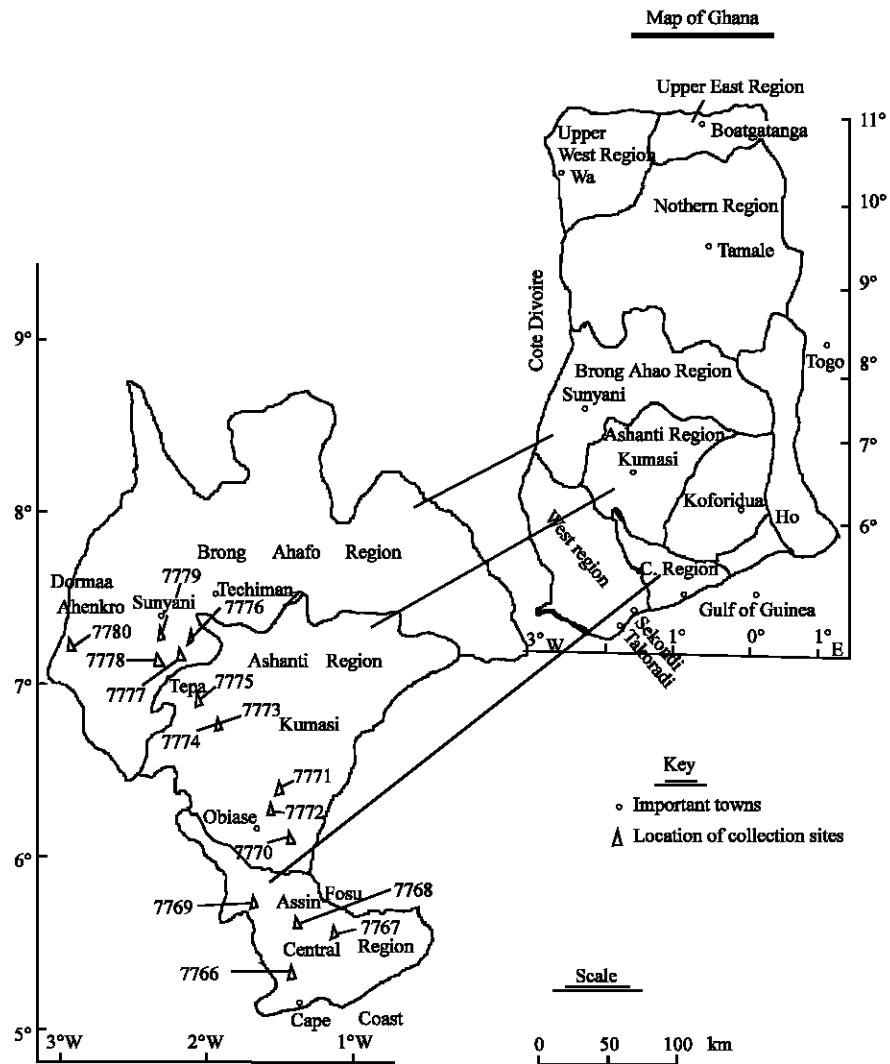


Fig. 1: Location of collection sites for edible fruits in Brong Ahafo Ashanti and Central Regions of Ghana

of Ghana. In each of the 3 regions, the Regional Forestry Officer was contacted for information on the number of forest reserves in the region and the Districts in which they are found. In a District containing a forest reserve, the District Forestry Officer was contacted to know the locations of the forest reserve, other forests, towns and villages bordering the forests. This was supplemented with information from the local people and a list of the towns and villages bordering the forests was compiled and sampled for visits. Towns and villages on the fringes of forests were targeted because of experiences from earlier missions to collect fruits and nuts. Towns and villages of at least 5 km apart were selected from the list sampled and visited.

Collection of edible wild fruits had been undertaken during the dry season and there was the need to collect those that are in season during the wet season.

Information on edible wild fruits at the various sites they were found was collected through the administration of structured questionnaires, interviews as well as group discussions.

Regarding germplasm, fruits that had fallen onto the ground from tall trees were collected. For medium size trees, small trees and shrubs, fruits from the basal, middle and upper parts were collected. Fruits from each plant were taken as one accession. These were accompanied by a voucher herbarium specimen. Passport data on latitude, longitude, altitude, drainage, associated plant species and population size among others were recorded.

The fruit samples collected were kept in moist sawdust in polythene bags. The seeds were depulped 1-2 days after arrival at the base station. The seeds were sown after being given various treatments to enhance germination.

RESULTS

Four accessions were collected from Central Region and six accessions were collected each from Ashanti and Brong Ahafo Regions to bring the total number of accessions collected to 16 (Table 1). Out of the 16 accessions there were 13 different species.

On the habits of the plants there were four shrubs, two climbers and ten trees (Table 1). Of the climbers one was woody and the other was herbaceous. There was one tall tree, six medium size trees and three small trees bringing the number of trees to ten.

Regarding the habitats of the fruit trees, one tall tree *Aningeria altissima* was found on top of a high mountain in a forest reserve where there were many stands of the species. Two of the shrubs were also found in forest reserves bringing the total number of plants found forest reserves to 3. Seven of the trees comprising of small and medium size ones were found in food crop farms, cash crop farms or in a home garden (Table 1). The two accessions of *Myrianthus arboreus* GH7768 and GH7777 were found in fallow lands whilst *Salacia pyriformis* was found in a secondary forest.

Table 1: Habits and habitats of Edible Wild fruit trees in 3 Regions of Ghana

Species	Local name	Habit	Habitat
<i>Carpolobia lutea</i> G. Don	Afeakoo	Shrub	Forest reserve
<i>Spondias mombin</i> Linn.	Atoa	Tree (medium)	Food crops farm
<i>Myrianthus arboreus</i> Pbeauv.	Nyankuma	Tree (small)	Food crops farm
<i>Vitex ferruginea</i> Schum. and Thonn	Afoaa	Tree (medium)	Cash crop farm
<i>Irvingia gabonensis</i> Baill.	Abesebuo	Tree (medium)	Cash crop farm
<i>Spondias mombin</i> Linn.	Atoa	Tree (medium)	Home garden
<i>Aningeria altissima</i> (A,Chev.) Aubrev. and Pellegr.	Apotro	Tree (tall)	Forest reserve
<i>Cola millenii</i> K. Schum.	Bonsam bese	Tree (small)	Cash crop farm
<i>Dioscoreophyllum cumminsii</i> (Staph) Diels.	Kwaabe	Climber (tender)	Cash crop farm
<i>Drypetes chevalieri</i> Beille	Katrika	Shrub	Forest reserve
<i>Deinbollia pinnata</i> Schum and Thonn.	Asikoto	Shrub	Cash crop farm
<i>Myrianthus arboreus</i> P. Beauv	Nyankuma	Tree (small)	Fallow land
<i>Garcinia kola</i> Heckel	Tweapea	Tree (medium)	Food crops farm
<i>Salacia pyriformis</i> (G. Don) Steud	Osonokotodwe	Climber(wood)	Secondary forest
<i>Salacia pallenscens</i> Oliv.	Akokonanta	Shrub	Fallow land
<i>Spondias mombin</i> Linn.	Atoa	Tree (medium)	Home garden

Table 2: Locations of edible wild fruits collected in 3 Regions of Ghana

Accession	Species	Village/town	District	Region	Latitude °N	Longitude °W
GH7766	<i>Carpolobia lutea</i>	Kakum Nat. Park	Twifo-Hemang Lower Denkyira	Central	05° 20' 90"	001° 22' 99"
GH7767	<i>Spondias mombin</i>	Anianhwe	Asikuma- Odoben-Brakwa	Central	05° 41' 36"	000° 86' 56"
GH7768	<i>Myrianthus arboreus</i>	Nuanua	Assin	Central	05° 41' 44"	001° 23' 34"
GH7769	<i>Vitex ferruginea</i>	Taylorkrom	Twifo-Hemang Lower Denkyira	Central	05° 41' 58"	001° 26' 05"
GH7770	<i>Irvingia gabonensis</i>	Menang	Adanse East	Ashanti	06° 00' 83"	001° 26' 44"
GH 7771	<i>Spondias mombin</i>	Medoma	Adanse West	Ashanti	06° 20' 45"	001° 32' 73"
GH7772	<i>Aningeria altissima</i>	Atatam	Adanse East	Ashanti	06° 17' 38"	001° 27' 53"
GH7773	<i>Cola milenii</i>	Amofakrom	Atwima	Ashanti	06° 40' 30"	001° 56' 53"
GH7774	<i>Dioscoreophyllum cumminsii</i>	Amofakrom	Atwima	Ashanti	06° 40' 40"	001° 56' 28"
GH7775	<i>Drypetes chevalieri</i>	Nyame-bekyere	Ahafo Ano South	Ashanti	06° 51' 77"	001° 59' 29"
GH7776	<i>Deinbollia pinnata</i>	Subriso	Tano South	Brong Ahafo	07° 73' 89"	002° 00' 88"
GH7777	<i>Myrianthus arboreus</i>	Asukese	Tano North	Brong Ahafo	07° 05' 32"	002° 09' 96"
GH7778	<i>Garcinia kola</i>	Kwanware	Tano North	Brong Ahafo	07° 06' 99"	002° 11' 52"
GH7779	<i>Salacia pyriformis</i>	Abuom	Sunyani	Brong Ahafo	07° 16' 19"	002° 21' 31"
GH7780	<i>Salacia pallenscens</i>	Abuom	Sunyani	Brong Ahafo	07° 16' 18"	002° 21' 30"
GH7781	<i>Spondias mombin</i>	Diabakrom	Dormaa	Brong Ahafo	07° 03' 25"	002° 59' 17"

Edible wild fruits collected in the Brong-Ahafo Region were found in the western part of the region on latitude 07°N and longitude 002°W. Location of wild fruit trees in Central Region were found in latitude 05°N, longitude 001°W whilst those in Ashanti Region were found in latitude 05°N , longitude 001°W (Table 2 and Fig. 1).

DISCUSSION

The habitats of the edible wild fruit trees are of interest given the need to have the plants improved. It is also interesting to note that out of the 16 accessions collected, only 3 were found in reserved forest and the rest found at places where the land had been cultivated before (fallow land, secondary forests) or where the lands were under cultivation (food crop farms, cash crop farms, home garden). This shows that edible wild fruit trees are recognized as important and were being given some form of domestication (Aiyelaabge, 1998). For those found in fallow lands or secondary forests it shows the importance to the farmers. In these land uses, the land had been cultivated before and allowed to fallow. The farmers did not destroy the plants when they were cultivating the land (Foudon and Manga, 2000). This also agrees with an observation by Cruz and Casas (2002) on *Poleskia chende* in Central America that there is artificial selection and sparing of desirable phenotypes of the wild edible fruit trees during vegetative clearing of the land for cultivation. Some of these might have been planted intentionally during the period of cultivation. Again for farmers to know the locations of these fruit trees shows the importance and the intimate knowledge of these plants to them (Styger *et al.*, 1999).

It is also interesting to note that most of the fruit trees found in farms or in home gardens were either small or medium sized making the fruits easier to be harvested than from tall trees. Small trees were found below the lower canopy of the forest. Medium trees were found in the middle and lower canopies of the forest. Tall trees were those found in the upper canopy. The places visited for the collection of edible wild fruits were in the semi-deciduous rain forest areas.

It can be seen from Table 2 that the places visited in the 3 regions had different latitudes. Central region was found in latitude 05°N, Ashanti Region, latitude 06°N and Brong-Ahafo Region, latitude 07°N. This did not limit finding common plants like *Spondias mombin* in all the 3 latitudes.

CONCLUSIONS

From the study it can be concluded that Ghana has diverse edible indigenous fruit trees which need to be exploited for nutrition and income generation. It is also seen from the study that these plants are important to the farmers and so some are found in their farms and home gardens showing that some form of domestication was taking place in some of the fruit trees. The fruit trees are used as traditional agroforestry trees in the farmers farms thereby helping to maintain forest cover.

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