Plants Used As Anti-Anaemic and Haematinic Agents among Indigenes in Ijero Local Government Area, Ekiti State, Nigeria

M. A. Adeniran
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ABSTRACT

The central discourse of this work is on the plants used by the indigenes of Ijero Local Government Area of Ekiti State for the prevention and treatment of blood disorders such as anaemia and haemolysis (the breakdown of red blood cells and their haemoglobins). Mention is made of plants used as anti-sickling agents for the treatment of sickle-cell anaemia. Herbal treatment of other forms of anaemia such as microcytic and megaloblastic anaemia were discussed. The research design for this study is Survey design. Materials and method for the study include the use of interviews (two-way communication), semi-structured questionnaire matrix and normal field technique for plant collection. In the study, 46 botanicals that have anti-anaemic and haematinic properties were discussed. The treatise includes the general descriptions of the plants, their local and scientific names and the parts of the plants used. Their methods of preparation were enumerated as well as the medicinal significance of all enlisted botanicals. Consequent upon the findings, the justification for this study includes that the use of haematinic plants would help rural and urban dwellers to overcome problems of anaemia and haemolysis, caused by constant malaria attack on children and adults which is prevalent in the study area. Rural and urban dwellers in the study area would be able to identify and learn to use anti-anaemic and blood-building plants already left un-utilized due to people's ignorance and lack of ethnobotanical education. It is therefore submitted that The State Department of Health should encourage research into the use of medicinal plants to supplement orthodox medications available.

Keywords: Anti-anaemic, haematinic botanicals

INTRODUCTION

One of the agents that destroy human blood over the years in tropical Africa in general is the malaria parasite (*Plasmodium spp*). The parasite is a notorious blood destroyer that damage Red Blood Cells resulting in breakdown of health and death, mostly of children (Moronkola and Fabiyi, 2001; Mader, 2004; Omotayo, 2007; Adeniran, 2007). Culturally, medicinal plants have been in use from ancient times for prevention and cure of illnesses and diseases (Bakhru 1990; Farnsworth 1998;
Anselm 2001; Adeniran 2015b). The use of medicinal botanicals to prevent and [or] cure blood related illness such as anaemia and haemolysis has been in practice from ages especially in naturopathic medicine (Balick and Cox, 1996; Bakhru 1990; Anselm 2001; Adeniran 2011; Anonymous, 2014). Both Microcytic and megaloblastic anaemia (mainly caused by deficiencies of folates, iron and pyridoxine (B6 vitamin) could be cured or prevented by the use of appropriate medicinal plants, herbs and vegetables (Cobley 1976; Taylor 1984; Anselm 2001; FAO 2004; Srivastava S., Srivastava V. and Srivastava P., 2008; Ogunlade 2015; Torimiro, Eiler, Nwoke, Alao, Ayinde, and Olosunde 2015).

Ijero Local Government Area, comprising 13 villages and towns is the largest in the whole of Ekiti State. It has vast forest and farmland and numerous rural dwellers. Anaemia and haemolysis are prevalent in this area because malaria infestation occurs at a very high rate. This is in consonance with the assertion made by Omotayo (2007), Adeniran (2007), Provan and Henson (1999), Moronkola and Fabiyi that anaemia and haemolysis are prevalent in the tropics among the black races where malaria infestation is a constant phenomenon. Anaemia (though not a diseases) is a condition in which the haemoglobin concentration falls below the normal range (Taylor, Green and Stout, 1984; Omotayo, 2000; Mader, 2004). Haemolysis is a condition and product of the attack of haemoglobins of Red Blood Cells by agents such as chemicals or toxins produced in the blood during infestations – in this wise, the haemoglobins are broken down and become non-functional (Omotayo, 2007; Srivastava S., Srivastava V. and Srivastava P., 2008; Adeniran, 2015a).

**MATERIALS AND METHOD**

This study adopts survey research design. Eight communities were randomly selected in the study area and were visited. In each community, ten people (making a total of Eighty [80] indigenes) who had maintained continuous domicile for a period of fifteen years and above were selected and interviewed using semi-structured questionnaire matrix. The interviews were conversational and involved two-way communication adapted according to Kayode (2005). Normal field technique for plant collection and herbarium development were used for vegetable sampling and plant collection (Stohlgren, Falkner and Shell, 1994).

**RESULTS AND DISCUSSION**

In this study, informants and survey reports reveal 46 different plants used as anti-anaemic and haematinic agents. A total of 25 different angiosperm families were represented including 34 genera. Of these, 23 species (50%) were trees, 2 species (4.35%) were shrubs, 9 species (19.56%) were climbers, 12 species (26.09%) were herbs. The following plant families had only 1 species each: Periplocaceae,
Arecaceae, Portulacaceae, Poaceae, Lauraceae, Tiliaceae, Piperaceae, Moringaceae, and Papilionaceae. The families Solanaceae, Euphorbiaceae, Malvaceae, Amaranthaceae, and Basellaceae had 2 species respectively. Fabaceae, had 3 species, Rutaceae had 4. The family Cucurbitaceae ranked highest with 7 species. The plant parts used include the leaves, stem and roots. The plants are used either individually or jointly. Preparation methods were either by decoction, infusion or as soup. Significant improvement in haemoglobin count and blood level of patients was noticed few days after administration. The symptomatic paleness in the conjunctiva and of the skin (dermis) became abated (Bakhru, 1990; Anselm, 2001; Omotayo, 2000, 2007; Kayode, 2005; Adeniran, 2015b).

Table 1: The botanicals used in the treatment and prevention of anaemia and haemolytic conditions in the study area

<table>
<thead>
<tr>
<th>Plant Species and Family</th>
<th>English common names</th>
<th>Nigerian Vernacular names</th>
<th>Part of Plant used</th>
<th>Methods of Preparation</th>
<th>Medicinal value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Parquetina nigrescens (Alfzef) bullock</td>
<td>Parquetina</td>
<td>Yoruba-Ogbo, Ewe Ogbo</td>
<td>Fresh leaves</td>
<td>Decoction, or soup ingredient</td>
<td>Blood tonic</td>
</tr>
<tr>
<td>2 Luffa cylindrica</td>
<td>Sponge vine</td>
<td>Yoruba-kankaneri, kankan ayaba</td>
<td>Tender/foliage leaves</td>
<td>Cold infusion</td>
<td>Iron and Folic acid deficiency</td>
</tr>
<tr>
<td>3 Zanthoxylum piperiti DC yhum. wild waterm</td>
<td>Zantho-Fagara</td>
<td>Yoruba- Igi ata, Hausa-Faba Kuwari</td>
<td>Root</td>
<td>Decoction, infusion, as chewing stick</td>
<td>Anti-sickling agent</td>
</tr>
<tr>
<td>4 Pterocarpus soyauxii</td>
<td>Red heart wood</td>
<td>Yoruba- Orosun, osan papa Binin: Akume Igbo: Awo</td>
<td>Inner bark</td>
<td>As soup ingredient, Decoction</td>
<td>Blood tonic</td>
</tr>
<tr>
<td>5 Pterocarpus Osun Forest Osun, lesser Cam</td>
<td>Forest Osun, Cam wood</td>
<td>Yoruba: Osun, igi Osun Binin: Ume Igbo: Ubie</td>
<td>Inner bark</td>
<td>Decoction, soup</td>
<td>Blood tonic</td>
</tr>
<tr>
<td>6 Pterocarpus midbraedii Harms. (Fabaceae)</td>
<td>Vermillion Wood</td>
<td>Yoruba: Ure, Ire Binin: Ure Igbo: Oba, osisi oha</td>
<td>Green leaves</td>
<td>As soup ingredient</td>
<td>For iron, folic acid deficiency</td>
</tr>
<tr>
<td>7 Telfaira occidentalis Hook. (Cucubitaceae)</td>
<td>Fluted pumpkin</td>
<td>Yoruba: Efo apiroko, efo Ugu, Binin: Unwenken Igbo: Ugwu, ugu, Ula</td>
<td>Green leaves</td>
<td>Cold infusion, As soup ingredient</td>
<td>For iron and folic acid deficiency</td>
</tr>
<tr>
<td>8 Cocos nucifera L (Arecaceae)</td>
<td>Coconut, coconut palm</td>
<td>Yoruba: Agbon, Igbi agbon, Igbo: alo beke Hausa: Attagara kawakwar</td>
<td>Ripened Fibrouspericarp</td>
<td>Decoction</td>
<td>For iron and folic acid deficiency</td>
</tr>
<tr>
<td>9 Corchorus olitorius L. (Tiliaceae)</td>
<td>Jute plant, Jew’s mallow</td>
<td>Yoruba: Oyoyo Ewedu Hausa: Malafiya Igbo: Aturara</td>
<td>Fresh green leaves</td>
<td>Cold infusion, soup ingredient</td>
<td>For Iron and folic acid deficiency</td>
</tr>
<tr>
<td>10 Cola nitida (Vent) Schott and Engl. (Sterculiaceae)</td>
<td>Cola, kolanut</td>
<td>Yoruba: Obi Obi gbana Hausa: Goro Binin: Tibe Igbo: Oji</td>
<td>Stem Bark</td>
<td>Decoction</td>
<td>Blood tonic</td>
</tr>
<tr>
<td>No.</td>
<td>Scientific Name (Family)</td>
<td>Common Name</td>
<td>Language</td>
<td>Part Used</td>
<td>Preparation</td>
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<tr>
<td>11</td>
<td>Cola acuminata (P. Beauv) Schott and Engl. (Sterculiaceae)</td>
<td>Cola, traditional cola-nut</td>
<td>Yoruba</td>
<td>Stem bark</td>
<td>Decoction</td>
</tr>
<tr>
<td>12</td>
<td>Alchornea laxiflora (Beth) Pax and K. Hoffim. (Euphorbiaceae)</td>
<td>Arithmetic stick.</td>
<td>Yoruba</td>
<td>Younger or tender leaves</td>
<td>Cold infusion, with malt or milk.</td>
</tr>
<tr>
<td>13</td>
<td>Ipomoea batatas L. (Malvaceae)</td>
<td>Sweetpotato</td>
<td>Yoruba</td>
<td>Fresh green leaves</td>
<td>Soup ingredients</td>
</tr>
<tr>
<td>14</td>
<td>Talinum triangulare L. (Portulacaceae)</td>
<td>Water leaf</td>
<td>Yoruba</td>
<td>Fresh leaves</td>
<td>As soup ingredients, cold infusion</td>
</tr>
<tr>
<td>15</td>
<td>Solanacio biafrae L. (Solanaceae)</td>
<td>African night shade</td>
<td>Yoruba</td>
<td>Fresh leaves</td>
<td>As soup ingredients, cold infusion</td>
</tr>
<tr>
<td>16</td>
<td>Solanum nigrum L (Solanaceae)</td>
<td>Guinea corn, Great millet, sorghum</td>
<td>Yoruba</td>
<td>Upper dried Leaves and Shoot</td>
<td>Decoction</td>
</tr>
<tr>
<td>17</td>
<td>Sorghum bicolor L. Beth/Hook (Poaceae)</td>
<td>Guinea corn</td>
<td>Yoruba</td>
<td>Leaves</td>
<td>Decoction</td>
</tr>
<tr>
<td>18</td>
<td>Theobroma Cacao L (Sterculiaceae)</td>
<td>Sheabuttertree</td>
<td>Yoruba</td>
<td>Dried inner bark</td>
<td>Decoction</td>
</tr>
<tr>
<td>20</td>
<td>Piper guineense Schum and Thonn(Piperaceae)</td>
<td>West African native pepper</td>
<td>Yoruba</td>
<td>Leaves</td>
<td>cold infusion, decoction</td>
</tr>
<tr>
<td>21</td>
<td>Viscaria paradoxum Gaertn f Syn. Butyrospermum paradoxum (Gaertn F)Hepper</td>
<td>Indian spinach Malabar spinach</td>
<td>Yoruba</td>
<td>Young reddish leaves</td>
<td>cold infusion, decoction</td>
</tr>
<tr>
<td>22</td>
<td>Basella alba, syn. Basella rubra L(Basilaceae).</td>
<td>Indian spinach Malabar spinach</td>
<td>Yoruba</td>
<td>Leaves</td>
<td>As soup ingredient</td>
</tr>
<tr>
<td>23</td>
<td>Telfairia pedata (Smith ex sims) Hook.(Cucurbitaceae)</td>
<td>Telfairia, oyster nut, Lesser telfairia</td>
<td>Yoruba</td>
<td>Young/tender leaves</td>
<td>cold infusion, as soup ingredient</td>
</tr>
<tr>
<td>24</td>
<td>Ficus sur Forsck syn. Ficus capensis Thunb (Moraceae)</td>
<td>Zamzibar oil vine, fig tree</td>
<td>Yoruba</td>
<td>Leaves</td>
<td>As herbal soup or taken with palm wine</td>
</tr>
<tr>
<td>25</td>
<td>Hibiscus suarathiensis L. (Malvaceae)</td>
<td>Spiny Climer Hibiscus</td>
<td>Yoruba</td>
<td>Leaves and shoot</td>
<td>Decoction</td>
</tr>
<tr>
<td>26</td>
<td>Taraxacum officinale L. (Asteraceae)</td>
<td>Wild Lettuce, Dandelion-greens</td>
<td>Yoruba</td>
<td>Leaves</td>
<td>As soup ingredient</td>
</tr>
<tr>
<td>27</td>
<td>Amaranthus sp L (Amaranthaceae)</td>
<td>Amaranthus</td>
<td>Yoruba</td>
<td>Whole leaves and fruits/seeds</td>
<td>As soup ingredients</td>
</tr>
<tr>
<td>28</td>
<td>Moringa oleifera Lamaysyn. M. Pterygosperma Gaertn (Moringaceae)</td>
<td>Moringa</td>
<td>Yoruba</td>
<td>Leaves/seeds</td>
<td>Decoction, seed as food ingredient</td>
</tr>
<tr>
<td>29</td>
<td>Colocasia esculenta L. Schott. Dasheen(Araceae)</td>
<td>Cocoyam (pink type)</td>
<td>Yoruba</td>
<td>Tender, Foliage leaves</td>
<td>As soup ingredient</td>
</tr>
<tr>
<td>No.</td>
<td>Plant Name</td>
<td>Common Names</td>
<td>Parts Used</td>
<td>Preparation</td>
<td>Uses</td>
</tr>
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</tr>
<tr>
<td>30</td>
<td>Celosia argenta (Lamaranthaceae)</td>
<td>Lagos spinach, Quail grass</td>
<td>Leaves</td>
<td>As soup ingredient</td>
<td>For folic acid and iron deficiencies</td>
</tr>
<tr>
<td>31</td>
<td>Musa paradisiaca (Musaceae)</td>
<td>Plantain</td>
<td>Yoruba: Ogde nla, Ogde aghagha leaves, Igbo: Owura</td>
<td>Decoction, as food ingredient</td>
<td>For iron deficiency</td>
</tr>
<tr>
<td>32</td>
<td>Entandrophragma angolense (Welw C.C. Berg,Meliaceae)</td>
<td>Cedar mahogany</td>
<td>Yoruba: Ijebo Igebu. Igbo: Owura</td>
<td>Bark</td>
<td>Decoction as soup ingredient</td>
</tr>
<tr>
<td>33</td>
<td>Entandrophragma candollei (Harms (Meliaceae))</td>
<td>Cedar mahogany</td>
<td>Yoruba: Ijebo. Igbo: Owura</td>
<td>Bark</td>
<td>Decoction or as soup ingredient</td>
</tr>
<tr>
<td>34</td>
<td>Entandrophragma cylindricum – Sprague(Meliaceae)</td>
<td>Sapele wood</td>
<td>Yoruba: Ijebo Igebo. Igbo: Owura</td>
<td>Bark</td>
<td>As soup ingredient or by decoction</td>
</tr>
<tr>
<td>35</td>
<td>Entandrophragma utile (Dawe and Sprague (Meliaceae))</td>
<td>Utile</td>
<td>Yoruba: Ijebo Igebo. Igbo: Owura</td>
<td>Bark</td>
<td>As soup ingredient or by decoction</td>
</tr>
<tr>
<td>36</td>
<td>Momordica balsamina (L.(Cucubitaceae))</td>
<td>Africa cucumber, Bitter gourd</td>
<td>Yoruba: Ejinrin. Igbo: alo-ese</td>
<td>Leaves</td>
<td>Cold infusion</td>
</tr>
<tr>
<td>37</td>
<td>Momordica Charantia (L.(Cucurbitaceae))</td>
<td>African cucumber</td>
<td>Yoruba: Ejinrin. Igbo: wewe</td>
<td>Leaves</td>
<td>Cold infusion</td>
</tr>
<tr>
<td>38</td>
<td>Momordica foetida (Schum and thorn (Cucurbitaceae))</td>
<td>African cucumber</td>
<td>Yoruba: Ako Ejinri</td>
<td>Leaves</td>
<td>Cold infusion</td>
</tr>
<tr>
<td>39</td>
<td>Cnidoscolus aconifolium (L.(Euphorbiaceae))</td>
<td>Tree spinach, Chilite rubber</td>
<td>Yoruba: Iyana Ipaja</td>
<td>Leaves</td>
<td>Cold infusion</td>
</tr>
<tr>
<td>40</td>
<td>Okouhaka aubrevillei (Santalaceae)</td>
<td>Death tree, king of trees, Great tree</td>
<td>Yoruba: Asorin, oba iga, Modarikan</td>
<td>Bark</td>
<td>Decoction</td>
</tr>
<tr>
<td>41</td>
<td>Waltheria indica (L.(Sterculiaceae))</td>
<td>Velvet bush, Tonic leaf, Waltheria.</td>
<td>Yoruba: Korikodi ewe oogun eje, Opa emere, Ewe efin, opa esure</td>
<td>Dried leaves + bark of okou-banka aubrevillei + potash</td>
<td>Decoction</td>
</tr>
<tr>
<td>42</td>
<td>Zanthoxylum leprieurii (Lam) (Rutaceae).</td>
<td>Zantho-fagara Spiny tree</td>
<td>Yoruba: Igi ata. Hausa: FalaKuwari, Igbo: Aku-kunkita</td>
<td>Root</td>
<td>Decoction, infusion, as chewing stick</td>
</tr>
<tr>
<td>43</td>
<td>Zanthoxylum rubescens (Lam) (Rutaceae)</td>
<td>Zantho-fagara, Spiny tree</td>
<td>Yoruba: Igi ata. Hausa: FalaKuwari, Igbo: Aku-kunkita</td>
<td>Root</td>
<td>Decoction, infusion, as chewing stick</td>
</tr>
<tr>
<td>44</td>
<td>Zanthoxylum zanthoxyloides (L.) (Papilionaceae)</td>
<td>Zantho-fagara Spiny tree</td>
<td>Yoruba: Igi ata. Hausa: Fasa kuwari Igbo: Akukunkita</td>
<td>Root</td>
<td>Infusion, Decoction</td>
</tr>
<tr>
<td>46</td>
<td>Cucurbita Pepo (L)(Cucurbitaceae)</td>
<td>Marrow, Pumpkin,</td>
<td>Yoruba: Agbeje Elegede,</td>
<td>Cooked fruit, Leaves.</td>
<td>Cold infusion of leaves</td>
</tr>
</tbody>
</table>

**Sources:** Adapted from Cobley (1976), Anselm (2001), Omotayo (2007), Anonymous (2014), Ogunlade (2015), Adeniran, 2015b)
CONCLUSION AND RECOMMENDATIONS

In our contemporary society, most people patronize foods that are too rich in calorie with low mineralization and very little vitamin content. Consumption of junk foods and chemically preserved foods is the order of the day. This poor dietary pattern in conjunction with high incident of diseases like malaria has made people mostly susceptible to anaemia and haemolytic conditions (Anselm, 2001; FAO/WHO, 2004; Adeniran, 2001; Anonymous, 2014). The justification for this study are that the use of haematinic plants would help rural and urban dwellers to overcome problems of anaemia and haemolysis, caused by constant malaria attack on children and adults which is prevalent in the study area. Rural and urban dwellers in the study area would be able to identify and learn to use anti-anaemic and blood-building plants already left un-utilized due to people’s ignorance and lack of ethnobotanical education. It is therefore opined that rural and urban dwellers in the study area in particular, and Ekiti State in general, should form the habit of utilizing the abundant blood-building plants and medicinal vegetables in their vicinity to enhance good health and promote total wellness. This will (at little or no costs) complement whatever medications are provided for the people by the Primary Health Care Department in the State. The State Department of Health should encourage research into the use of medicinal plants to supplement orthodox medications available. Botanical gardens or cultural botanies should be created in each Local Government Area to raise and conserve rare and near-to extinction medicinal botanicals as observed by Kayode (2005) this will make these medicinal plants to be within the reach of the people. Public lectures and seminars should be organized by the Ministry of Health to enlighten people on the usefulness of neglected beneficial botanicals due to people’s ignorance and illiteracy. Government should encourage research in natural medicinal forest products. Local ethnobotanical seminars should be encouraged among indigenous people of each local government in the State for public enlightenment on the use of herbs to enhance better health and general wellness.

REFERENCES


