



Involvement of young Beninese researchers in the valorization of traditional recipes based on medicinal plants: first results of future phytomedicines

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Introduction

Africa is a continent affected by many human and animal diseases with the highest prevalence and mortality rates in the world. This dark sanitary chart has a direct impact on its level of development. In a situation of difficult access to modern medicine and care, nearly 80% of African populations resort to medicinal plants. It therefore appears necessary for African researchers to investigate traditional recipes in order to identify new bioactive substances that are effective and at a lower cost for the treatment of common diseases in Africa. It is in this context that a multidisciplinary team of young scientists from Benin has undertaken since 2010, some works on plants used in the treatment of human and animal diseases.

Methodology

A multidisciplinary team has been set up in the Rsearch Lab. Ethnopharmacological surveys were carried out in the communes of southern Benin (fig. 1). Phytochemical, pharmacological and toxicological tests were carried out on the plants extracts. Extracts with the best activities were identified for phytomedicine formulation.



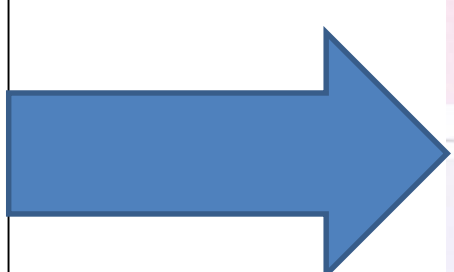
Targets:

- ✓ Traditional healers
- ✓ Herbalists
- ✓ Breeders
- ✓ consumers

Fig 1: Study area

Results

- A team of young researchers committed to the valorization of medicinal plants in Benin:
 - Age: 18 to 39 years
 - Composition : 8 PhD, 10 PhD students, 30 masters
 - Member Specialties: Physiology, Pharmacology, Microbiology, Biochemistry, Natural Chemistry, Toxicology, Veterinary, Botany.
- Lists of plants used in the treatment of various human and animal diseases are available.
- Levels of toxicity, phytochemical groups and pharmacological properties (antioxidants, hepatoprotective agents, nephroprotective agents, hemostats, cicatrizants, hypocholesterolemic, antidiabetic agents, and antibacterials) of more than 100 plant extracts have been identified.
- Plants of interest identified for the formulation of phytomedicines



Some of the lab's members

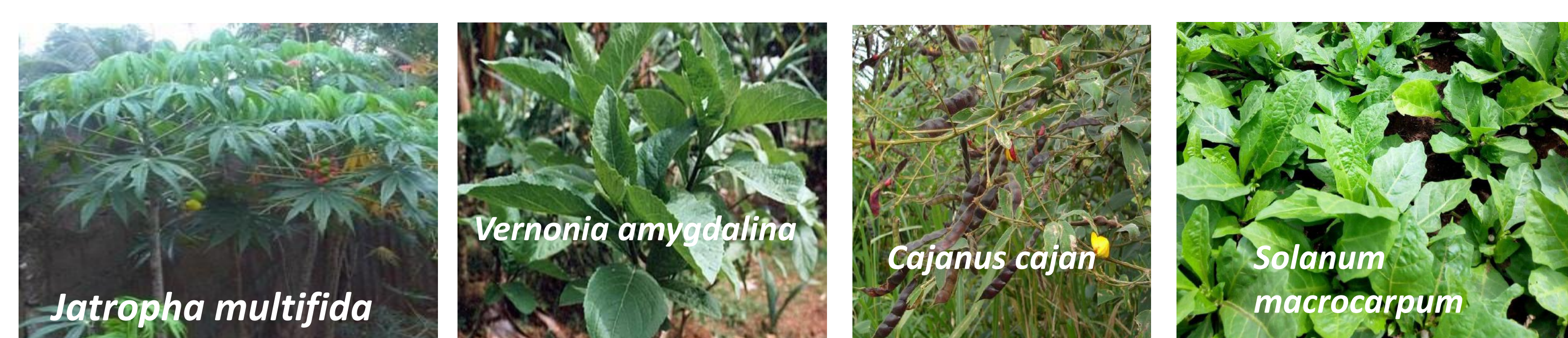


Fig. 2: Some plants identified for the phytomedicines

Discussions and Conclusions

It is a unique experience of collaborative engagement of young researchers from Benin for valorization of medicinal plants. The results obtained in next 10 years will allow the development of phytomedicines. This is an initiative that deserves encouragement and support from organizations to ensure its sustainability. This singular experience of Benin shows that it is possible for all African countries to set up dynamic research groups for the promotion of medicinal plants.

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Table : Characteristics of the ethnopharmacological surveys carried out

Study type	Targets	Period	Number of plants recorded	Most cited species
Ethnobotanical survey of plants used in the treatment of salmonellosis in Benin	- Traditional healers (n=100) - Herbalists (n=100) - Breeders (n=150)	2016-2017	64	<i>Cajanus cajan</i> , <i>Moringa oleifera</i> , <i>Manihot esculenta</i> , <i>Vernonia amygdalina</i> , <i>Psidium guajava</i> .
Ethnobotanical survey on plants used in the treatment of infections in Benin	- Traditional healers (n=14) - Herbalists (n=31) - Consumers (n=30)	2016	92	<i>Ocimum gratissimum</i> , <i>Crateva adansonii</i> , <i>Hyptis suaveolens</i> , <i>Ocimum americanum</i> , <i>Lippia multiflora</i>
Use of plants in hog farming practices in Benin	- Herbalists (n=70)	2019	42	<i>Moringa oleifera</i> , <i>Carica papaya</i> , <i>Manihot esculenta</i> , <i>Ipomea aquatica</i> , <i>Talinum triangulare</i>
Ethnopharmacological survey of medicinal plants used in the treatment of oligospermia and azoospermia in Benin	- Traditional healers (n=54) - Herbalists (n=36)	2018	60	<i>Garcinia kola</i> , <i>Cissampelos mucronata</i> , <i>Cyperus esculentus</i> , <i>Cocos nucifera</i> , <i>Citrus aurantifolia</i>
Ethnopharmacological survey on plants used in the treatment of hemorrhages in Benin	- Traditional healers (n=66) - Herbalists (n=36)	2010	89	<i>Musa sapientum</i> , <i>Jatropha multifida</i> , <i>Cissampelos mucronata</i> , <i>Cassytha filiformis</i> , <i>Annona senegalensis</i> ,
Ethnobotanical survey of leaf vegetables used in the treatment of diarrhea in southern Benin	- Traditional healers (n=10) - Herbalists (n=30) - consumers (100)	2013-2014	27	<i>Ocimum gratissimum</i> , <i>Vernonia amygdalina</i> , <i>Crateva adansonii</i> , <i>Sesamum radiatum</i>
Use of South Benin plants in the treatment of typhoid fever: the role of herbalists	- Herbalists (n=90)	2016-2017	57	<i>Senna siamea</i> , <i>Phyllanthus amarus</i> , <i>Uvaria chamae</i> , <i>Vachellia sieberiana</i> , <i>Heterotis rotundifolia</i>
Ethnopharmacological survey of plants used in the treatment of candidiasis in southern Benin	- Traditionnal healers (n=22) - Herbalists (n=51)	2015-2018	109	<i>Pteleopsis suberosa</i> ; <i>Lantana camara</i> , <i>Vernonia cinerea</i> , <i>Ocimum gratissimum</i> , <i>Lippia multiflora</i>
Ethnopharmacological survey of plants used in the treatment of diabetes in women of Cotonou and Abomey-Calavi	- Herbalists (n=42)	2012	61	<i>Catharanthus roseus</i> , <i>Lippia multiflora</i> <i>Moldenke</i> , <i>Phyllanthus amarus</i>

Frist specimens of phytomedicines

