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DEPENDENCY ON PLANTS AS NATURAL RESOURCES FOR A HEALTHY LIFESTYLE AMONGST WOMEN IN SUB-DISTRICT DURIAN PIPIT, LEMBAH LENGGONG

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ABSTRACT

This ethnomedicinal plant survey was conducted in sub-district Durian Pipit, Lembah Lenggong, Hulu Perak, Peninsular Malaysia. Focal of this survey is to provide a detailed listing on the diversification of plants as natural resources and the benefits to the local community specifically in health maintenance for women. Local communities of five villages in this sub-district were randomly interviewed and plant species identified by herbal expertise. Targeted subjects are women from the age range of 15 to 80 years old. There are 70 species of plants from 39 families documented in this survey. Results obtained show that parts of the plants used are shoot, flower, leaf, fruit, bark, stem, rhizome and root. The frequency of the part of the plants consumed is higher in leaf, followed by shoot, fruit, rhizome, root, bark, flower and stem. Result obtained connotes that the aerial part of the plants has the higher preferences of efficacy to the local community. The knowledge of the medicinal health remedies is traditionally transmitted from their forefathers and well known amongst women of middle age and above. However, the knowledge is scarcely dominated by the younger generation and less practiced in their daily life nowadays.

KEYWORDS: Diversity, Durian Pipit, Ethnomedicinal Plants, Health, Indigenous Knowledge, Women

INTRODUCTION

Consumption of plants as natural resources existed since time immemorial. Benefits of plants can be classified as source of food, medicinal remedies, ornamental, commercial and cultural value. Traditional herbal remedies are defined as the practices, approaches, knowledge, and beliefs on the benefits of plants that apply mainly in daily life for health maintenance and revival of an individual well-being [1]. The use of plants in providing human needs have been discussed in millennia. Plants carry vast array of secondary metabolite constituents useful to human pertinently for health maintenance [2]. The dependency of human on plants as herbal remedies has been discussed in myriad ways. The dependency of humankind on the plant benefits increases due to the advent of modernization and increase in human population [3]. In modern medicine or pharmaceutical formulation, the phytochemical and allopathic constituents derived from the plants are processed industrially and commercially. A study shows that dependency on plant natural resources is higher amongst local people in rural areas compared to urbanized people [4]. The reasons of the disparity are due to lack of modern medicinal facilities and the cost factor. The unfavorable conditions made the local's preferences on modern medicine to shift to traditional herbal remedies because the latter is readily available and abundance in nature. Research shows that people in rural areas use the plant products in their crude form. The positive features of traditional herbal remedies in a long run are manifold. These include the low cost and affordability amongst the underprivileged community [5] and, less involvement of technologies which then lead to low side effects to human caused by artificial chemical produced industrially [6].

Unfortunately, the use of traditional herbal medicine may perish by time due to the attainment of new technologies in modern medicine. Abundance of cosmetic products or supplements for women, being produced and introduced commercially in market and the feedback are compelling. Statistic shows that women have a greater desire than men to try any nutraceutical products particularly for health maintenance, or cosmetic products that are available on market be it with or without being attested by the Ministry of Health [7]. Recent research proves that multiple of nutraceutical products contribute to several severe diseases such as cancer and kidney failure in the long run [8]. Women and health is a serious issue concerning people from multiple ranges of age especially younger generations that are prone to technologies providing vast medical information. There are several Non-Government Organizations (NGOs) attested to provide knowledge, guidance, support and awareness on severe diseases concerning women today such as breast cancer and cervical cancer to improve women's lifestyle. Healthy lifestyle is a way of life that lowers the risk of getting ill, prevent aging, improve body mass by eating healthy food, exercise and live positively [9].

Thus, study on the application and utilization of plants as natural resources is crucial in providing and sharing the knowledge on plant benefits for a better and healthier lifestyle. Furthermore, it helps in reviving local socio-economic status. However, better understanding on the harvesting of natural plant resources should also be emphasized to sustain the structure and dynamic ecosystem for the next generation. Conservation of natural products is in a challenge as it is rendered by climate change that leads to alteration in plant phenology [9]. The detrimental effect of species extinction and genetic loss are believed to be increasingly accelerated by uncontrolled anthropogenic activities. In our field study in Durian Pipit and amongst the women from the villages, we observed the variations of the local plant species selected by the rural community for consumption and application in their health care. Most of the species for women health care are prepared as traditional maternity remedies.

This method of healing is sometimes being complemented with modern medicine to enhance the health state. Maternity remedies are reviewed as healing treatments for women after they had delivered. A study done [10] shows great dependency of women on plant species for maternity purposes. Consumption of the raw plant species which normally have unusual nutrient content is also a part of a healthy diet amongst the women. Several previous research verifying the richness of bioactive compounds found in raw plant parts. This consumption method concerted with food security idea in providing multi-nutritious plant natural resources products to human.

The more natural you eat the healthier the food consumption because of its natural ingredients. The use of plant as remedies and food has been explained in a book on healthy lifestyle [11], together with the information that of harmful effects on processed and refined foods to human. The objective of the present study was to conduct a review of important, selected unique plant species in the villages of Durian Pipit, Lembah Lenggong, along with the uses of the plants in health care amongst the local women.

METHODOLOGY

Lembah Lenggong is located in Hulu Perak district, about 50km north of Kuala Kangsar, the royal town of Perak. A place well known amongst locals as an archaeological site, Lembah Lenggong has been declared as a World Heritage Site on 30th June 2012 by UNESCO, a worldwide organization for educational, scientific and culture. It is surrounded by two mountain ranges namely Banjaran Titiwangsa and Banjaran Bintang Hijau. Lembah Lenggong encompasses 3 sub-districts known as Durian Pipit, Temelong and Lenggong. This preliminary study focused on Durian Pipit which consists of 5

villages - Kampung Beng, Kampung Kuak, Kampung Changkat Berangan, Kampung Kelantan and Kampung Raban. Interviews were conducted with the local people mainly the women in all the villages of Durian Pipit, from all walks of life, ranging from 15 to 80 years old. A guided field study was also conducted whereby plant species related to women healthcare were collected for observation, and to be identified by plant taxonomists from the School of Biological Sciences, University Sains Malaysia. Local names of some species as well as description of their uses were obtained from the respondents. It seems that the knowledge of traditional herbal remedies applied in their daily life for the means of health maintenance were relegated from their forefathers and basically based on folklore.

RESULTS AND DISCUSSIONS

Table 1: Diversity and Usage of Plant Species in Durian Pipit, the Plant Species Were Recorded According to the Parts Used and Usage in Maternity Remedies or Consumed as Salad

No.	Species	Part Used	Local Usage
1	L: Asam gelugor S: *Garcinia cambogia* F: Clusiaceae	Fruit	Maternity remedies
2	L: Asing-asing S: *Sauropus androgynus* F: Phyllanthaceae	Leaf	Salad
3	L: Beka S: *Oroxylum indicum* F: Bignoniaceae	Shoot Fruit	Salad
4	L: Betik S: *Carica papaya* F: Caricaceae Bignoniaceae	Shoot	Salad
5	L: Cabang tiga/ Tapak itik /Tenggek burung S: *Euodia lunu-ankeda* F: Rutaceae	Leaf	Salad
6	L: Capa/ Telinga kerbau S: *Blumea balsamifera* F: Asteraceae	Leaf	Maternity remedies
7	L: Gajah beranak S: *Goniothalamus macrophyllus* F: Annonaceae	Leaf Root	Maternity remedies
8	L: Ganda rusa S: *Justicia gendarussa* F: Acanthaceae	Leaf	Maternity remedies
9	L: Geti S: *Sesbania grandiflora* F: Fabaceae	Leaf	Salad
10	L: Halba S: *Trigonella foenumgraecum* F: Fabaceae	Leaf	Maternity remedies
11	L: Halban S: *Vitex pubescens* F: Verbenaceae	Bark	Maternity remedies
12	L: Halia S: *Zingiber officinale* F: Zingiberaceae	Leaf Rhizome	Maternity remedies
13	L: Halia bara S: *Zingiber officinale Roscoe var rubrum Theilade* F: Zingiberaceae	Rhizome	Maternity remedies
14	L: Jambu batu/ Jambu berasa/ Cina S: *Psidium guajava* F: Myrtaceae	Leaf	Maternity remedies

Table 1: Contd.,

15	L: Jarak S: *Ricinus communis* F: Euphorbiacea	Leaf	Maternity remedies
16	L: Jering S: *Pithecellobium jiringa* F: Fabaceae	Fruit	Salad
17	L: Kacang sayap/ Botol S: *Psophocarpus tetragonolobus* F: Fabaceae	Fruit	Salad
18	L: Kaduk S: *Piper sarmentosum* F: Piperaceae	Leaf	Maternity remedies, Salad
19	L: Kantan S: *Etlingera eliator* F: Zingiberaceae	Leaf Flower	Maternity remedies
20	L: Kari S: *Murayya koenigii* F: Rutaceae	Shoot	Salad
21	L: Kemangi S: *Ocimum sanctum* F: Lamiaceae	Shoot	Salad
22	L: Keman air S: *Neptunia oleraceae* F: Fabaceae	Shoot	Salad
23	L: Kesum S: *Polygonum minus* F: Polygonaceae	Leaf	Maternity remedies, Salad
24	L: Kucai S: *Allium odorum* F: Alliaceae	Leaf	Salad
25	L: Kundang/ Setar / Remia S: *Bouea macrophylla Griff* F: Anacardiaceae	Shoot	Salad
26	L: Kunyit hidup S: *Curcuma longa* F: Zingiberaceae	Leaf Rhizome	Maternity remedies
27	L: Kunyit terus S: *Zingiber ottensii valeto* F: Zingiberaceae	Rhizome	Maternity remedies
28	L: Lambuk/ Kemumu S: *Colocasia gigantean* F: Araceae	Leaf	Salad
29	L: Legundi/ Lemuni S: *Vitex trifolia* F: Verbenaceae	Leaf	Salad
30	L: Lempoyang S: *Zingiber aromaticum* F: Zingiberaceae	Rhizome	Maternity remedies
31	L: Lengkuas S: *Alpinia galanga* F: Zingiberaceae	Leaf Rhizome	Maternity remedies
32	L: Lengkuas hutan S: *Alpinia pahangensis* F: Zingiberaceae	Leaf Rhizome	Maternity remedies
33	L: Letup-letup S: *Passiflora foetida* F: Solanaceae	Fruit	Salad

Table 1: Contd.,

34	L: Limau kasturi S: *Citrus microcarpa* F: Rutaceae	Fruit	Maternity remedies
35	L: Limau nipis S: *Citrus aurantifolia* F: Rutaceae	Fruit	Maternity remedies
36	L: Limau purut S: *Citrus hystrix* F: Rutaceae	Fruit	Maternity remedies
37	L: Manggis S: *Garcinia mangostana* F: Clusiaceae	Shoot	Salad
38	L: Mas cotek S: *Ficus deltoidea* F: Moraceae	Leaf	Maternity remedies
39	L: Mengkudu S: *Morinda citrifolia* F: Rubiaceae	Shoot Fruit	Maternity remedies, Salad
40	L: Mengkudu kecil S: *Morinda elliptica ridl* F: Rubiaceae	Shoot Fruit	Maternity remedies, Salad
41	L: Mertajam S: *Erioglossum rubiginosum* F: Sapindaceae	Fruit	Salad
42	L: Namnam S: *Cynmotera cauliflora* F: Fabaceae	Fruit	Salad
43	L: Pandan wangi S: *Pandanus amaryllifolius* F: Pandanaceae	Leaf	Maternity remedies
44	L: Paku-pakis S: *Diplazium esculentum* F: Woodsiaceae	Shoot	Salad
45	L: Pegaga S: *Centella asiatica* F: Mackinlayaceae	Leaf	Salad
48	L: Petai S: *Parkia speciosa* F: Fabaceae	Fruit	Salad
47	L: Petai belalang/ Jawa S: *Leucaena leucocephala* F: Fabaceae	Shoot Fruit	Salad
48	L: Pinang S: *Areca catechu* F: Arecaceae	Fruit	Salad
49	L: Putat S: *Barringtonia asiatica* F: Lecythidaceae	Shoot Fruit	Salad
50	L: Rembungai S: *Moringa oleifera* F: Moringaceae	Shoot Fruit	Salad
51	L: Ros hutan S: *Rosa canina* F: Rosaceae	Shoot	Salad
52	L: Salam S: *Syzygium polyanthum* F: Myrtaceae	Shoot	Salad

Table 1: Contd.,

53	L: Samak serai S: *Eugenia polyantha* F: Myrtaceae	Shoot	Salad
54	L: Sekentut S: *Paederia foetida* F: Rubiaceae	Root	Maternity remedies, Salad
55	L: Semalu S: *Mimosa pudica* F: Fabaceae	Root	Maternity remedies
56	L: Senia S: *Ficus hispida* F: Moraceae	Shoot	Salad
57	L: Sentang S: *Azadirachta excels* F: Meliaceae	Shoot	Salad
58	L: Serai S: *Cymbopogon citrus* F: Poaceae	Leaf	Maternity remedies
59	L: Serai wangi S: *Cymbopogon nardus* F: Poaceae	Leaf	Maternity remedies
60	L: Serapat S: *Parameria poyneura* F: Apocynaceae	Root	Maternity remedies
61	L: Seringai S: *Flemingia strobilifera* F: Fabaceae	Leaf	Maternity remedies
62	L: Setawar S: *Kalanchoe pinnata* F: Crassulaceae	Leaf	Maternity remedies
63	L: Sirih S: *Piper betle* F: Piperaceae	Leaf	Maternity remedies
64	L: Teja lawang S: *Cinnamomum cinereum* F: Lauraceae	Bark	Maternity remedies
65	L: Temu S: *Curcuma sp* F: Zingiberacae	Rhizome	Maternity remedies
66	L: Tepos gajah S: *Beaucarnea recurvata* F: Asparagaceae	Leaf Stem	Maternity remedies
67	L: Tunjuk langit S: *Helminthostachys zeylanica* F: Ophioglosiaceae	Leaf Rhizome	Maternity remedies
68	L: Ubi kayu S: *Manihot esculenta* F: Euphorbiaceae	Shoot	Salad
69	L: Ubi kerinting S: not available F: Euphorbiaceae	Shoot	Salad
70	L: Ulam raja S: *Cosmos caudatus* F: Compositae	Shoot	Salad

L: Local name S: Scientific name F: Family

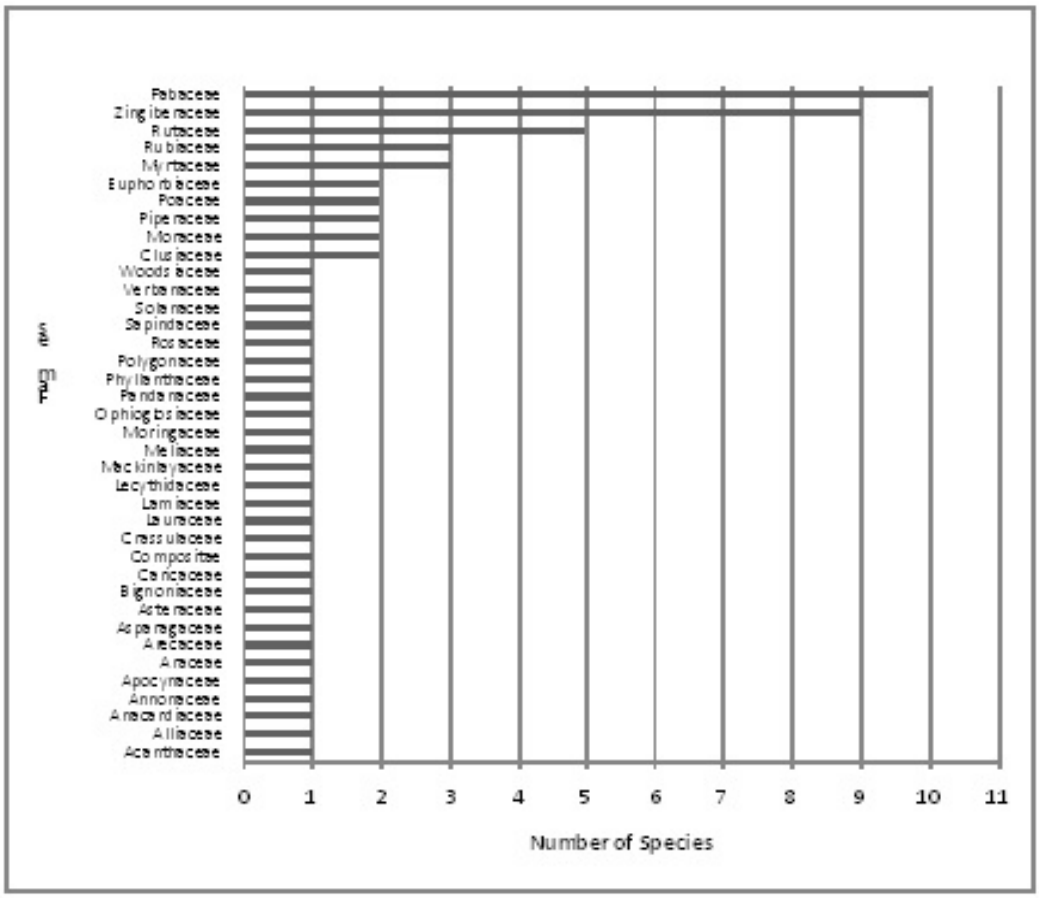

Figure 1: Number of Species in a Family

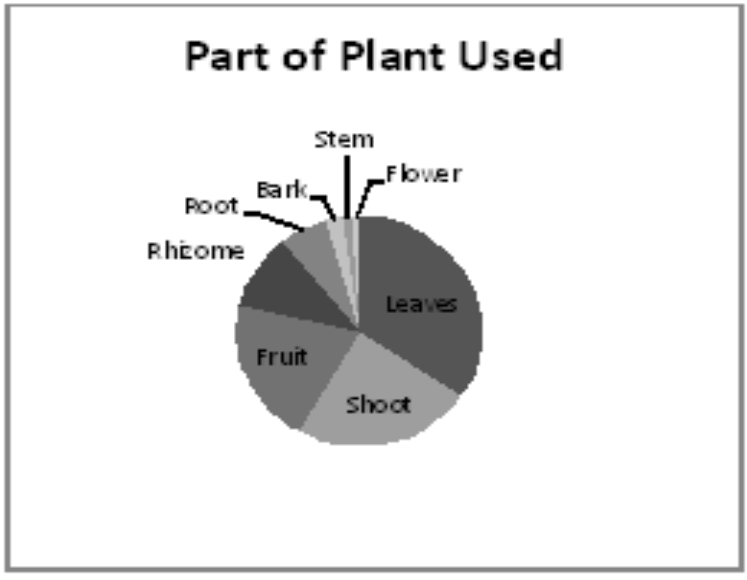

Figure 2: Frequency Part of Plant Used

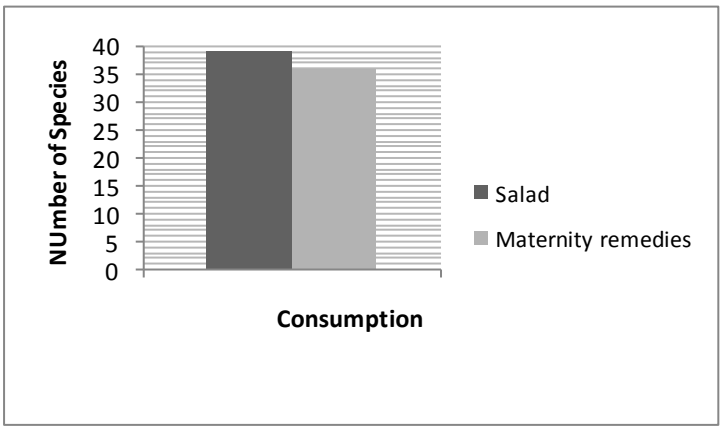

Figure 3: Frequency of Local Consumption on Each Species

Details of the plant data are succinctly classified according to species, parts of the plant used and local usage as described in Table 1. The study documented 70 species of plants from 39 families. Plant species mostly used by the villagers of Durian Pipit are from the Family Fabaceae (10 species) followed by Zingiberaceae (9 species) and Rutaceae (5 species) (Figure 1). Other families with plant species recorded were: Euphorbhiaceae, Myrtaceae, and Rubiaceae (3 species), Clusiaceae, Moraceae, Piperaceae, and Poaceae (2 species), and Acanthaceae, Alliaceae, Anacardiaceae, Annonaceae, Apocynaceae, Araceae, Arecaceae, Asparagaceae, Asteraceae, Bignoniaceae, Caricaceae, Compositae, Lauraceae, Lamiaceae, Lecythidaceae, Mackinlayaceae, Meliaceae, Moringaceae, Ophioglosiaceae, Pandanaceae, Phyllanthaceae, Rosaceae, Sapindaceae, Solanaceae, Verbenaceae, Woodsiaceae (1 species).

A report by Setshogo [10] also shows that the Family Fabaceae is the most dominant plant family being used for treating diseases. For the women in Durian Pipit, majority of the plant species from the Family Fabaceae are consumed as salad from the fruit part. Accordingly, the abundance of the Zingiberaceae species attests that their homeland is an undisturbed area and rich of natural plants products [11]. The most used plant part of the species of Zingiberaceae is the rhizome which is traditionally applied in maternity remedies. Studies on the diversity of plant natural resources will enhance the understanding of species richness especially in undisturbed areas that rely on the factors of natural habitat biocomponent and ecosystem [12].

This study also gained the information that the part of the plants used is mostly the aerial which is the leaf, followed by shoot, fruit, rhizome, root, bark, stem and flower (Figure 2). Edible leaves are the most used organ in traditional foods [13]. Several reports have revealed that the leaf has a high content of bioactive compounds compared to other plant parts [14]. The preference of the part consumed is also depending on the efficacy of the plants. The part of the plant consumed is indeed the vital aspect to be considered, as some may have lethal or side effects to the consumer [1].

Results obtained show that most of the plants observed are consumed in their daily dietary in the crude form as salad, compared to application as maternity remedies (Figure 3). This implicates that most of the plant species used amongst the women are edible, and are still traditionally consumed traditionally in their diet for a healthy lifestyle. Their preferences on the plant parts consumed are based on their beliefs and knowledge relegated from their forefathers and the availability of the plant resources in the area. In fact, traditional medical practitioners still exist in their community and are there to provide their services to the local community regarding the many ways of traditional medicinal practices using plants.

In the study conducted, knowledge on herbal remedies perceived to be dominated amongst the older generation of women. This review of plant consumption empowered by women elucidates that the local plant resources do form a major part of their healthy lifestyle diet. The women of Durian Pipit are still dependent upon using plant natural products as a holistic view of ailments. This could also akin to means of sustenance in improving their social status [15]. Emigration of younger generation to urban areas attributed by marriage, job requirement and facilities [16] explains the age domination in knowledge and traditional medicinal practices factor.

Review from the study shows that women in the community have a unique repertoire of their local plants for treatment of ailments, a knowledge which is closely guarded and usually passed on from generation to generation. The distinctive feature of treatment of ailments by the community is that, they rely almost exclusively on simple preparations of the medicinal plants or plant parts in their treatments, especially the maternal remedies. They lack of modern products and are less exposed to these sorts such as nutraceutical supplements for health. In replace, the plant species distributed widely and wildly throughout their villages play the role. These are considered as another system of medicine, best referred to as folk medicine, whereby the plant species are believed to produce antioxidant, anti-aging and anticancer effects to women especially the salads. For the usage in maternity remedies practices, the plant species recorded are mentioned by the respondents to possess antiseptic and anti-perspirant effects as well as improve blood circulation and the nerves.

In recent periods, there is a high demand on plant natural resources due to an increase in the world population. The consequence of this elevation is might be the over-exploitation of natural production in order to meet the world needs and demand. Over-harvesting of plant natural resources in an unsustainable way, will explicitly or implicitly harm the species and allay its richness in nature and eventually lead to extinction [17].

Hence, reporting whilst educating the local community of the primary health care for the substantial segment of the rural population of Lembah Lenggong is an initial approach of this study. It is important to conserve the traditional knowledge of plant uses by the local women. Equally important is support in providing knowledge of sustainable ways of harvesting the plant natural resources either for trading or self consumed purposes.

CONCLUSIONS

The diversity of the Durian Pipit plant species with its local usage recorded could be preserved for posterity. Further observations on the plant diversity are to be continuously done periodically to conserve the plant species existence and richness. The women rely almost exclusively on simple preparations of the medicinal plants or the plant parts in any maternal treatments. Overall, the Fabaceae and Zingiberaceae families form an important source of plant resources for the women in Durian Pipit in their folk medicinal use as demonstrated by their use either for maternity remedies or consumption as salad. These two family plants can therefore be considered as the groups of plants widely appreciated in the local women medicinal practices. Other plant families should not easily be neglected even though the number of plant species in use is small. All of the recorded plant species have and will become important sources of novel drugs and lead compounds.

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