ETHNOMEDICINAL SURVEY OF MEDICINAL PLANTS USED TO TREAT DIABETES IN BANGI, SELANGOR, MALAYSIA.

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INTRODUCTION: Synthetic antidiabetic drugs have been reported to exhibit deleterious effects and have failed to alter the course of diabetic complications. Traditional medicinal plants possessing antidiabetic effects can be a valuable source for the development of safer oral hypoglycemic agents. Since medicinal plant's knowledge is based on cultural practice and oral transmission from one generation to the next which is liable to fade away if not documented properly and preserved. Documentation and preservation of ethnomedicinal plants is extremely necessary not only to conserve cultural practices and biodiversity, but also for drug discovery and to improve community health care systems. Although, many ethnomedicinal surveys have been conducted and successfully accomplished by various researchers across different zones and communities in Malaysia [1– 5], to the best of our knowledge, no such survey has ever been reported in Bangi, Selangor, Malaysia particularly on the medicinal plants that are used in the management of diabetes. In order to preserve this valuable knowledge, this study therefore aimed to record the ethnomedicinal plants used for diabetes by local practitioners in Bangi community, Selangor, Malaysia.

SAMPLING:

Four villages surrounding the town, *kampung batu lima kampung rinching*, kampung *bahagia*, and *kampung* Bangi, were sampled. These *kampungs* (villages) sampled fall within 3 kilometers distance to and fro Bangi.

DATA COLLECTION:

♠Face to face discussion and questionnaires were used

♠ Information obtained includes;

- *Names, age of the respondent.*
- *Local names of the plants*
- *Origin of the plants.*
- Its usage, method of preparation and period of treatment.

♠A total of 100 respondents falling within the age bracket of 35 and 75 (male and female) were included in the study.

♠ Interview and questionnaires were conducted and written in Malay language.

RESULT ANALYSIS:

♠Percentages of the plant status, parts used, method of preparation, and types of plants were calculated.

♠ Relative citation index (RCI) for each species was also calculated based on the formula RCI=CI/N.

♠Citation Index, CI was used to measure the frequency of citation of a particular species by the respondents.

RESPONDENTS' DEMOGRAPHIC FEATURES:

♠Informants that participated in the questionnaires include;

- 33 respondents from *kampung Bangi*
- 26 respondents were from *kampung Batu Lima*
- 21 respondents were from *kampung Rinching*
- 20 respondents were from *kampung Bahagia*

♠ Face-to-face interview was strictly followed to assess and record the demographic features of all respondents.

♠ Low participation of women in all the *kampungs* were observed as it was also reported by the researchers in previous similar studies [6-7]

SPECIMENS SAMPLED:

The study indicates that herbal practitioners in Bangi have been using 30 species of different medicinal plants to treat diabetes.

They comprised of 25 families and 29 genera.

Five out of these families, viz., *Anacardiaceae, Asteraceae, Fabacea, Lamiacea* and *Moraceae* are represented by two species while the remaining families have one species.

Scientific name	Family name	Local name	Part used	Preparation	CI	RCI
Aloe vera	*Liliaceae*	*Lidah buaya*	Leaf	Oral administration of gel	6	0.1
Amaranthus spinosus	*Amaranthaceae*	*Bayam berduri*	Whole plant	Herbal soup	2	0.02
Anacardium Occidentale	*Anacardiaceae*	*Jambu golok*	Stem bark	Decoction	7	0.07
Andrographis paniculata	*Acanthaceae*	*Kalmegh*	Leaf	Infusion	4	0.04
Averrhoa bilimbi	*Oxalidaceae*	*Belimbing buloh*	Fermented leaf and flower	Infusion	3	0.03
Archidendron jiringa	*Fabaceae*	*Jering*	Leaf and seed	Leaves and seed paste eaten raw	2	0.02
Carica papaya	*Caricaceae*	*Betik*	Leaf and whole Fruit	Infusion	3	0.03
Centella asiatica	*Mackinlayaceae*	*Pegaga*	Leaf	Decoction	2	0.02
Citrus aurntifolia	*Rutaceae*	*Limau asam*	Root and fruit Juice	Decoction of root and infusion of juice mixed with hibiscus flower	3	0.03
Cosmos caudatus	*Asteraceae*	*Pokok kenikir*	Leaf	Decoction	3	0.03
Curcuma longa	*Zingiberacea*	*Kunyit*	Rhizome	Infusion	3	0.02
Cymbopogon citratus	*Poaceae*	*Sakumau*	Whole plant	Decoction for drinking and bathing	7	0.07
Ficus racemosa	*Moraceae*	*Akar serapat*	Stem bark	Decoction	2	0.02
Ficus deltoidea	Moraceae	Mas cotek	Root	Decoction	3	0.03
Gynura procumbens	*Asteraceae*	*Akar sebiak*	Leaf	Decoction	2	0.02
Hibiscus rosa-sinensis	*Malvaceae*	*Kembang sepatu*	Leaf and Flower	Decoction of flower, infusion of leaf paste mixed with lime juice	10	0.09
Mangifera indica	Anacardiaceae	***Mangga***	Stem bark	Decoction	3	0.03
Momordica charantia	*Cucurbitaceae*	*Peria katak*	Fruit	Juice taken orally	2	0.02
Morinda citrifolia	*Rubiaceae*	*Mengkudu*	Root	Infusion of the dried powdery root	5	0.05
Orthasiphon aristatus	*Lamiaceae*	*Misang kucing*	Leaf	Infusion	3	0.03
Orthosiphon stamineus	*Lamiaceae*	*Misai kucing*	Leaf	Decoction	2	0.02
Parkia speciosa	*Fabaceae*	*Petai*	Root and seed	Seed eaten raw, decoction of the root	3	0.03
Peucedanum japonica	Apiaceae	*Akar rejan*	Root	Decoction	2	0.02
Phyllanthus niruri	*Euphorbiaceae*	*Dukung anak*	Leaf	Decoction	2	0.02
Piper sarmentosum	*Piperaceae*	*Sireh*	Leaf	Decoction for bathing	1	0.01
Polyalthia bullata King	*Annonaceae*	*Tongkat ali hitam*	Root	Decoction	1	0.01
Psidium guajava	*Myrtaceae*	*Jambu batu*	Leaf	Decoction	8	0.08
Rourea concolor	*Connaraceae*	*Akar semeli*	Root	Decoction	1	0.01
Smilax myosotiflora	*Smilacaceae*	*Ubi jaga*	Root (tuber)	Decoction	1	0.01
Tetracera indica	*Dilleniaceae*	*Akar mempelas*	Stem bark and Leaf	Decoction	2	0.02

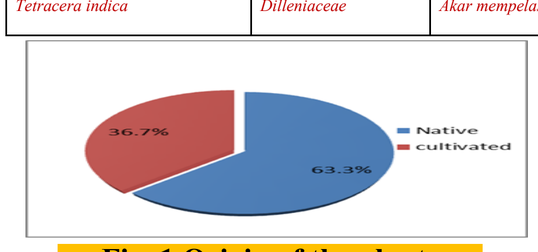

Fig. 1 Origin of the plants

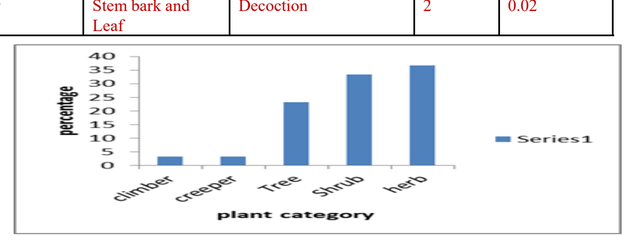

Fig. 2 Category of plants used for diabe-

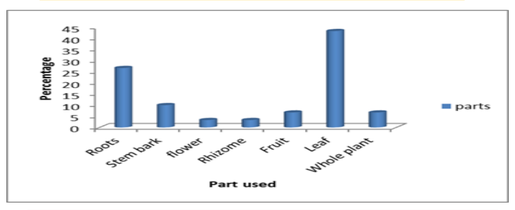

Fig. 3 Percentage distribution of various plant parts used to treat di-

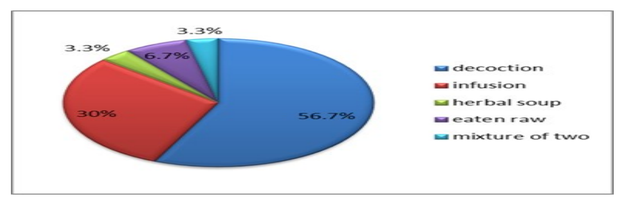

Fig. 4 Various method used for medicinal herbs preparation.

♠ Leaf was reported to be the most frequently used with 43.3% followed by root (26.7%) and stem bark (10%), respectively.

♠ The most frequently used method of preparation as obtained from the informants was found to be the decoction with 57.7%followed by the infusion and raw eating with 30% and 6.7% respectively.

♠ Among all the plants, *A. vera* has the highest RCI with 0.1 followed by *H. rosa sinensis, P. guajava* and *C. citratus* with 0.09, 0.08 and 0.07 RCI, respectively.

♠ Three plants viz. *Polyalthia bullata*, *Rourea concolor* and *Smilax myosotiflora* have never been scientifically validated for their traditional use as antidiabetic agents .

♠ Plant species for diabetes treatment varied in every village due to the differences in rate of industrialization, urbanization and environmental degradation .

CONCLUSION: This survey has successfully recognized the plants most commonly used by local practitioners in Bangi community to treat diabetes. Research studies on *P. bullata, R. concolor* and *S. myosotiflora* might furnish a new class of safe antidiabetic agents.

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