ANTI-HYPERGLYCEMIC PLANTS USED BY THE TRADITIONAL HEALER OF WEST GODAVARI DISTRICT, ANDHRA PRADESH, INDIA

Venkata Narasimha Kadali* and B. V. Sandeep

Department of Biotechnology, Andhra University, Visakhapatnam, Andhra Pradesh, India

ABSTRACT: A survey was conducted to collect the information about the effective medicinal plants used by the Traditional healer to treat diabetes. The use of herbal drugs increased worldwide because of lack of side effects and efficacy. Traditional healing is practising throughout the world to treat several diseases. The glycemic disease has become a serious issue in India and all over the world. The traditional healer of west Godavari district studied for the use of medicinal plants to treat diabetes. We report 19 species of plants which are active against Diabetes and about the scientific studies that have been conducted on them.

INTRODUCTION: Due to the effect of traditional plant healing, the whole scientific community is shifted towards the plant kingdom in search of new herbal drugs especially for diabetes. India has a rich source of medicinal plants. Medicinal plants have long history and are providing useful tools for treating various disease. In developing countries, increased use of traditional medicines taking especially herbal preparations in the local health care system and urban people are turning to herbal medicines. Now a day’s researchers have been focussed on the medicinal plants because lack of side effects and efficacy. Diabetes mellitus is characterized by the hyperglycemia that is induced by decreased cellular glucose uptake and metabolism. This metabolic disorder is rising global and is likely to hit 300 million by 2025 with India projected to have largest number of diabetic cases.

Currently dietary changes, oral hypoglycemic agents or insulin injections are utilized to prevent hyperglycemia. Now a days there are number of allopathic drugs are available to treat diabetes but all the agents causing serious side effects after prolonged use. Chronic hyperglycemia causes damages to eyes, kidneys, nerves, heart and blood vessels.

In order to overcome adverse effects many traditional plant medicines are used throughout the world to treat diabetes. Plants contain glycosides, alkaloids, terpenoids, flavonoids, carotenoids, etc. that are frequently implicated as having antidiabetic activity.

MATERIALS AND METHODS:

The present study was undertaken in Somarajucheruvu, in penugonda mandal, West Godavari District, Andhra Pradesh, India. The total geographical area is 4000 square km. This study was conducted in May 2015. Relevant information gathered from the traditional healer about the anti-diabetic plants. Interviews were also conducted on patients who have been taking these medications.
RESULTS:
List of medicinal plants used by the traditional healer.

1. Abutilon indicum:  
It belongs to the family Malvaceae. Local name is Duvvena kayaulu. Leaves of Abutilon indicum made in to paste mixed with water and taken orally to treat diabetes. Y.N. Seetharam et al (2002) proved alcohol and water extract of Abutilon indicum leaves showed significant hypoglycemic effect.

2. Annona reticulate:  
It belongs to the family Annonaceae. Local name is Ramaphalamu. Decoction of leaves of Annona reticulata mixed with cow’s milk and taken orally to treat Diabetes. Soumya P. Rout et al (2013) reported that Hydro-Alcoholic extract of leaves of Annona reticulata showed potent glucose lowering effect.

3. Carica papaya:  
It belongs to the family caricaceae. Local name is Boppayi. Unriped fruits along with seeds made in to paste and given with milk orally to treat diabetes. Venkateshwarlu. E et al (2013) proved that the aqueous extract of seeds of Carica papaya has anti hyperglycemic effect.

4. Azadirachta indica:  
It belongs to the family Meliaceae. Local name is Vepa. Leaves of Azadirachta indica made in to paste mixed with water taken internally to treat diabetes. S. K. Dholi et al (2011) reported that the ethanolic leaf extract of Azadirachta indica showed significant hypoglycemic effect.

5. Anacardium occidentale:  
It belongs to the family Anacardiaceae. Local name is Muntha mamidi. Leaves of Anacardium occidentale made in to paste with water and taken internally to treat diabetes. S. D. Sokeng et al (2007) proved that the methanol leaf extract, dichloro methane, ethyl acetate, and n- hexane fractions from Anacardium occidentale has hypoglycemic effect.

6. Coccinia grandis:  
It belongs to the family Cucurbitaceae. Local name is Donda kaya. Leaves of Coccinia grandis made in to paste mixed with milk and taken orally to treat diabetes. Kavitha A et al (2015) reported that the ethanolic leaf extract of Coccinia grandis caused a significant reduction on the glucose level of diabetic rats.

7. Gymnema sylvestre:  
It belongs to the family Asclepiadaceae. Local name is Podapatri. Dried leaf powder of Gymnema sylvestre mixed with water taken orally to treat diabetes. Pankaj Kishor Mishra et al (2009) proved that the aqueus leaf extract of Gymnema sylvestre has significant antidiabetic activity.

8. Mangifera indica:  
It belongs to the family Anacardiaceae. Local name is Mamidi chettu. Leaves of Mangifera indica grinded in to paste along with bark of tree mixed with water to treat diabetes. P. Venkatalakshmi et al (2011) reported that the ethanolic extract of Mangifera indica leaves has antidiabetic activity.

9. Piper nigrum:  
It belongs to the family Piperaceae. Local name is Mriyalu. The whole plant of Piper nigrum made in to paste mixed with milk taken orally to treat diabetes. ONYESIFE, Chioma et al (2014) proved that the ethanolic leaf extract of Piper nigrum has hypoglycemic effect.

10. Zinziber officinale:  
It belongs to the family Zingiberaceae. Local name is Allamu. Rhizome of Zinziber officinale made in to paste mixed with water to treat diabetes. Venkata K. S. N et al (2011) proved that the ethanolic extract of Zinziber officinale showed pronounced bloog glucose-lowering in alloxan induced diabetic rats.

11. Ficus bengalensis:  
It belongs to the family Moraceae. Local name is Marri chettu. Bark of Ficus bengalensis made in to powder mixed jaggery along with water taken orally to treat diabetes. K. Kannabiran et al (2008) reported that the aqueous extract of bark of Ficus bengalensis has antidiabetic and ameliorative potential in streptozotocin induced diabetic rats.

12. Psidium guajava:  
It belongs to the family Myrtaceae. Local name is Jamachettu. Decoction of leaves of Psidium...
guajava mixed with water and taken internally to treat diabetes. R. Manikandan et al (2013) proved that the antidiabetic activity of methanolic extract of Psidium guajava leaves by in vitro studies.

13. Hibiscus rosasiness:
It belongs to the family Malvaceae. Local name is Mamdaram. Leaves grinded in to paste mixed with water and milk taken orally to treat diabetes. Moqbel et al (2011) reported that the ethanolic extract fractions of Hibiscus rosasiness may contain potential oral hypoglycemic agents.

14. Moringa oleifera:
It belongs to the family Moringaceae. Local name is Munagakaya. Fruit juice along with leaves and flowers mixed with milk taken orally to treat diabetes. D. Jaiswal et al (2009) proved scientifically that the widely claimed use of Moringa oleifera as an ethnomedicine to treat diabetes mellitus.

15. Cassia auriculata:
It belongs family caesalpiniaecae. Local name is Tangedu. Leaf juice of Cassia auriculata mixed with bark and boiled milk taken orally to treat diabetes. Daisy et al (2012) reported that methanol extract of bark of Cassia auriculata found to be more active, when compared with hexane, ethyl acetate aqueus extract.

16. Ocimum sanctum:
It belongs to the family Lamiaceae. Local name is Thulasi. Leaves of Ocimum sanctum made in to paste mixed with water taken orally to treat diabetes. Anjana Talwar et al (2012) reported that the leaves of Ocimum sanctum has antidiabetic activity and antioxidant activity.

17. Murraya koenigii:
It belongs to family Rutaceae. Local name of the plant is Karepaku. Leaves of Murraya koenigii made in to paste mixed with water and taken orally to treat diabetes. Vinuthan M.K et al (2004) reported that Aqueous and methanol extracts of Murraya koenigii leaves showed significant reduction as compared to diabetic control groups.

18. Lawsonia inermis:
It belongs to the family Lythraceae. Local name of the plant is Gorintaku. Stem bark powder and leaves of Lawsonia inermis mixed with water and taken orally to treat daibetes. Arati chikaraddy et al (2012) showed that the ethanolic extract of Lawsinia enermis showed significant fall in blood glucose.

19. Momordica charantia:
It belongs to the family Cucurbitaceae. Local name of the plant is Kakarakaya. Leaves and fruits crushed in to paste mixed with milk and taken internally to treat diabetes. Savula Jyothsna et al (2012) reported that ethanolic extract of Momordica charantia fruit and the combination of macerated extracts of both Momordica charatia and Momordica dioicashowed significant antidiabetic activity.

DISCUSSION: Medicinal plants gaining lot of importance now a days because of efficacy they have been showing in the traditional healing. Researchers focussing on the traditional healers in order to find plant based drugs. The present study focussed on the traditional healing of diabetes revealed the efficient antidiabetic medicinal plants and also they have been proved scientifically as well. Traditional healer suggests these medications in the early morning, afternoon and night. These medications have specific doses and they have to be taken for months and years to cure. The interviews of the patients revealed that these herbal medicines have shown wonderful results without any side effects. They also revealed that the economic status of the people turning towards these medicines. The results obtained through this study are in agreement with the revisous reports by M. Pavan et al (2014) and Aswini Kumar Dixit et al (2011). The documented medicinal plants given in Table 1.

**Table 1: Shows the Anti Diabetic Plants Used by the Traditional Healer**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Medicinal Plant</th>
<th>Family</th>
<th>Local name</th>
<th>Plant part used</th>
<th>Scientific evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abutilon indicum</td>
<td>Malvaceae</td>
<td>Duvena kayalu</td>
<td>Leaves</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Annona reticulata</td>
<td>Annonaceae</td>
<td>Ramaphalamu</td>
<td>Leaves</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Carica papaya</td>
<td>caricaceae</td>
<td>Boppayi</td>
<td>Unripped fruit and</td>
<td>14</td>
</tr>
</tbody>
</table>
CONCLUSION: Herbal medications are safe and effective in curing the diseases. Effective work should be done by the researchers in order to provide cost effective and efficient drugs to the society.

ACKNOWLEDGEMENTS: The authors thank the Villagers, Patients and Traditional healer for providing the information. The authors also thank Prof. B.V. Sandeep (Head), Department of Biotechnology Andhra University, Dr. Sudhrakara rao. P, Dr. P. Bindiya for continuous support.

REFERENCES:

20. Onyesife, Chioma O, Ogunu, Victor N. and Anaduaka, Emeka G. Hypoglycemic Potentials of Ethanol Leaves

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Family</th>
<th>Part Used</th>
<th>Disease Cured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azadirachta indica</td>
<td>Meliaceae</td>
<td>Leaves</td>
<td>Dried leaves</td>
</tr>
<tr>
<td>Anacardium occidentale</td>
<td>Anacardiaceae</td>
<td>Dried leaves</td>
<td>Whole plant</td>
</tr>
<tr>
<td>Coccinia grandis</td>
<td>Cucurbitaceae</td>
<td>Dried leaves</td>
<td>Bark</td>
</tr>
<tr>
<td>Gymnema sylvestre</td>
<td>Asclepiadaceae</td>
<td>Dried leaves</td>
<td>Leaves</td>
</tr>
<tr>
<td>Mangifera indica</td>
<td>Anacardiaceae</td>
<td>Dried leaves</td>
<td>Leaves and bark</td>
</tr>
<tr>
<td>Piper nigrum</td>
<td>Piperaceae</td>
<td>Dried leaves</td>
<td>Whole plant</td>
</tr>
<tr>
<td>Zingiber officinale</td>
<td>Zingiberaceae</td>
<td>Dried leaves</td>
<td>Rhihzone</td>
</tr>
<tr>
<td>Ficus bengalensis</td>
<td>Moraceae</td>
<td>Dried leaves</td>
<td>Bark</td>
</tr>
<tr>
<td>Psidium guajava</td>
<td>Myrtaceae</td>
<td>Dried leaves</td>
<td>Leaves</td>
</tr>
<tr>
<td>Hibiscus rosasinesis</td>
<td>Malvaceae</td>
<td>Dried leaves</td>
<td>Leaves</td>
</tr>
<tr>
<td>Moringa oleifera</td>
<td>Moringaceae</td>
<td>Dried leaves</td>
<td>Flowers</td>
</tr>
<tr>
<td>Cassia auriculata</td>
<td>Caesalpinia</td>
<td>Dried leaves</td>
<td>Leaves</td>
</tr>
<tr>
<td>Ocimum sanctum</td>
<td>Lamiaceae</td>
<td>Dried leaves</td>
<td>Leaves</td>
</tr>
<tr>
<td>Murraya koenigii</td>
<td>Rutaceae</td>
<td>Dried leaves</td>
<td>Leaves</td>
</tr>
<tr>
<td>Lawsonia inermis</td>
<td>Lythraceae</td>
<td>Dried leaves</td>
<td>Stem bark</td>
</tr>
<tr>
<td>Momordica charantia</td>
<td>Cucurbitaceae</td>
<td>Dried leaves</td>
<td>Leaves and fruits</td>
</tr>
</tbody>
</table>


How to cite this article: