PHARMACOGNOSTICAL ANALYSIS OF VACHADIVATI – A POLYHERBAL FORMULATION IN THE MANAGEMENT OF OVERWEIGHT CHILDREN.

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ABSTRACT:
In India, we are still struggling with the burden of malnutrition but the issue of over-nutrition cannot be ignored. Childhood obesity is a burden in developed and developing countries. Overweight (Sthaulya) and obesity (Atisthaulya) are caused by numerous social and environmental factors that influence people’s food habit and physical activity. VachadiVati is an Ayurvedicpolyherbal preparation comprising of VACHA(AcoruscalamusLinn.), MUSTA(CyperusrotundusLinn.), DEVADARU(CedrusdeodaraRoxb.), SHUNTHI(ZingiberofficinaleRoxb.), ATIVISHA(Aconitum heterophyllumWall.), HARITAKI(Terminalia chebulaRetz.). VachadiVatihelps to reduce Kapha, which is the basis of fat accumulation, and it improves fat metabolism, hindering further fat deposition. These medicinal herbs can correct Kapha imbalance and help in weight loss. So for the treatment of overweight children, an Ayurvedic formulation of VachadiVati was selected. The standardization was carried out to the finished product VachadiVati to confirm its identity, quality, and purity. The pharmacognostic work reveals that presence of Starch grain of Shunthi, Stone cells of Musta, Pitted stone cells of Vacha, Group of fibres of Musta, Starch grain of Ativisha, Scleroid of Haritaki, Brown content of Devadaru, Prismatic crystal of Devadaru, Trichome of Haritaki, Scleroid of Vacha, etc. was observed microscopically. Organoleptic features of coarse powder made out of the crude drugs were within the standard range as mentioned in the classic.

Keywords-VachadiVati, Sthaulya, Overweight, Obesity
INTRODUCTION:

Obesity can be seen as the most prominent wave of the defined group of non-communicable diseases called "New World Syndrome", which is causing a huge social economic and public health liability in poor countries. The World Health Organization has described obesity as one of today's most neglected public health problems, affecting every region of the globe. The most important consequence of childhood obesity is its persistence into adulthood with all its health risks. The health risks include cardiovascular diseases, diabetes, osteoarthritis, gallbladder disease, and some sex hormone-sensitive cancers. It is more likely to persist when its onset is in late childhood or adolescence. Mortality risk increases with the increased weight of children. Globally, an estimated 10% of school-aged children, between 5 and 17 years of age, are overweight or obese. In India, many studies have shown that the prevalence of overweight among adolescents varies between 10% and 30%. According to the Centers for Disease Control and Prevention (2014), childhood obesity has doubled in children and has been quadruple in adolescence in the last 30 years. Poor dietary intake, physical inactivity, and lifestyle patterns are found to be the major reasons for obesity.

VachadiVati is an Ayurvedic polyherbal preparation comprising of comprising of Vacha(AcoruscalamusLinn.), Musta(CyperusrotundusLinn.), Devadaru(CedrusdeodaraRoxb.), Shunthi(ZingiberofficinaleRoxb.), Ativisha(AconitumheterophyllumWall.), Haritaki(TerminaliachebulaRetz.). As per the Rasapanchakaoft the ingredients of the Vachadivaithe drugs like Vacha, Musta, Devadaru, Shunthi, Ativisha, and Haritaki have Tikta-Katu Rasa, Ruksha-Laghu Guna, UshnaVeerya, Katu/MadhurVipaka hence they together have kapha-medhohara properties along with Lekhaniya and dipaneeya action. They work by the principle of GuruChatarpana(heavy and non-nourishing diet) which regulates the hunger and satiety center thereby regulating the energy intake of a person. This aids in the proper utilization of stored fat to fulfill the energy needs. As it is in Vati form its intake is very easy and does not create any difficulty for the subjects for its consumption.

MATERIALS AND METHODS

Drug Material

Raw drug materials were collected from the pharmacy store of Gujarat Ayurved University. The ingredients and the part used are given in the table.

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>Ingredient</th>
<th>Botanical Name</th>
<th>Parts Used</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>VACHA</td>
<td>Acoruscalamus</td>
<td>Dried Rhizome</td>
<td>1 parts</td>
</tr>
<tr>
<td>2.</td>
<td>MUSTA</td>
<td>Cyperusrotundus</td>
<td>Dried Rhizome</td>
<td>1 parts</td>
</tr>
<tr>
<td>3.</td>
<td>DEVADARU</td>
<td>Cedrusdeodara</td>
<td>Dried Heart wood</td>
<td>1 parts</td>
</tr>
<tr>
<td>4.</td>
<td>SHUNTHI</td>
<td>Zingiberofficinale</td>
<td>Dried Rhizome</td>
<td>1 parts</td>
</tr>
<tr>
<td>5.</td>
<td>ATIVISHA</td>
<td>Aconitum</td>
<td>Dried Root</td>
<td>1 parts</td>
</tr>
<tr>
<td>6.</td>
<td><strong>HARITAKI</strong></td>
<td><em>Terminalia chebula</em> Retz.</td>
<td>Dried fruit</td>
<td>1 parts</td>
</tr>
</tbody>
</table>

**Method of Preparation of the Vachadi Vati:**

*Vacha, Musta, Devadaru, Shunthi, Ativisha, Haritaki* were taken in given proportion and made into fine powder and sieved in mesh no. 80. The powders were mixed well in mass mixing machine until a homogenous mixture was obtained. Out of total amount of drugs, 10% of the crude drugs were used for the preparation of decoction. Thereafter, the above-mentioned powders were mixed with decoction and *Vati* of 500 mg each was prepared.

**Pharmacognostical study**

The Pharmacognostical study comprises of organoleptic study and microscopic study of the finished product.

**Organoleptic study**

The organoleptic characters of Ayurvedic drugs are very important and give the general idea regarding the genuinity of the sample. Organoleptic parameters like taste, color, odour, and touch were scientifically studied in pharmacognosy laboratory, I.P.G.T & R.A. Gujarat Ayurved University, Jamnagar under expert guidance.\(^{[11]}\)

**Microscopic study**

*Vachadi Vati* was powdered and dissolved with water and microscopy of the sample was done without stain and after staining with Phloroglucinol + HCL. Microphotographs of *Vachadi Vati* was also taken under a Corl-ziesstrinocular microscope.\(^{[12]}\)
RESULTS AND DISCUSSION VACHADIVATI:

Morphology/ Appearance

1. Shape- Round

Organoleptic characters

1. Color- Brownish
2. Odor- Aromatic
3. Taste- Bitter astringent
4. Touch- Smooth

Microscopic characters

1. Starch grain of Shunhi.
2. Stone cells of Musta.
3. Pitted stone cells of Vacha.
4. Group of fibers of Musta.
5. Starch grain of Ativisha.
7. The brown content of Devadaru.
8. Prismatic crystal of Devadaru.
10. Scleroid of Vacha.
11. The oleoresin content of Shunhi.
12. Fragment of an annular vessel of Ativisha.
13. The lignified fiber of Devadaru.
14. The lignified fiber of Shunhi.
15. The yellowish content of Vacha.
16. Lignified stone cells of Vacha.
17. Cortical cells of Ativishain surface view.
18. Lignified stone cells of Haritaki.
19. Lignified fibers passing through medullary rays of Devadaru.
20. Lignified scleroid of Shunhi.
21. The lignified stone cell of Musta.
Table No. 2 Main constituents seen in a microscopic study of VachadiVati:

<table>
<thead>
<tr>
<th>Fig.1</th>
<th>Starch grain of Shunthi</th>
<th>Fig.2</th>
<th>Stone cells of Musta</th>
<th>Fig.3</th>
<th>Pitted stone cells of Vacha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig.4</td>
<td>Group of fibers of Musta</td>
<td>Fig.5</td>
<td>Starch grain of Ativisha</td>
<td>Fig.6</td>
<td>Scleroid of Haritaki</td>
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<tr>
<td>Fig.7</td>
<td>Brown content of Devadaru</td>
<td>Fig.8</td>
<td>Prismatic crystal of Devadaru</td>
<td>Fig.9</td>
<td>Trichome of Haritaki</td>
</tr>
<tr>
<td>Fig.10</td>
<td>Scleroid of Vacha</td>
<td>Fig.11</td>
<td>The olioresin content of Shunthi</td>
<td>Fig.12</td>
<td>Fragment of an annular vessel of Ativisha</td>
</tr>
</tbody>
</table>
DISCUSSIONS AND CONCLUSION:

The constituents VachadiVati such as Vacha(AcoruscalamusLinn.), Musta(CyperusrotundusLinn.), Devadaru(CedrusdeodaraRoxb.), Shunthi(ZingiberofficinaleRoxb.), Ativisha(Aconitum heterophyllumWall.), Haritaki(Terminaliachebularetz.)are endowed with various biological properties and hence the polyherbal preparation prepared from these ingredients will have combined goodness of all the individual herbs. These plants are highly used for fulfilling various disease alignment. This concept is highly recommended for those children who are suffering from overweight/Obesity. The pharmacognostic analysis of VachadiVati confirmed the purity and genuinely of the drug. Further study may be carried out on it on the basis of an observation made and results of experimental studies. As pharmacognostical profiles of VachadiVati are available and this may be beneficial for future researchers and can be used as a reference standard in the future quality control researchers.
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References: