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Formulation And Evaluation Of Polyherbal Tablet In Treatment Of PCOS

[1*]Rutuja Govind Shinde, [2]Geetanjali N. Badak, [3]Deepak V. Fajage, [3]Swapnali J. Bhagat

[1]Student, Rajgad Dnyanpeeth's College of Pharmacy, Bhor, Pune,

[2]Assistant Professor, Department of Chemistry, Rajgad Dnyanpeeth's College of Pharmacy, Bhor, Pune

[3] Research Scholar, Department of Pharmacology, Rajgad Dnyanpeeth's College of Pharmacy, Bhor, Pune

Abstract: Formulating and evaluating polyherbal tablets for PCOS treatment is the main goal of research work. It includes three herbs: *Asparagus Racemosus* (roots), *Glycine max* (L) *Merr* (seeds), and *Trigonella frenum graecu*m (seeds). A polyherbal tablet was developed using these herbs that have potential. In the preparation, various concentrations of dried powder from these three plants were used. Wet granulation method was use to formulate tablet by using potato starch as a binder. A phytochemical examination of the produced polyherbal tablet reveals the presence of flavonoids and saponin, which play an important role to overcome the insulin resistance and shows the antiandrogenic property. Preformulation experiments were conducted to assess precompression parameters, the preformulation studies consist angle of repose, carr's index, bulk density, tap density, and hassner's ratio and after that, the preparation of tablet performed evaluation parameter's such as hardness, friability, appearance, weight uniformity, disintegration, and in vitro dissolution. May the tablet will effective to treat the PCOS. And may it will show the benefits to cure the PCOS. In order to maximize the benefits of PCOS treatment, more research can look into other herbal powders and formulate it better, and to developed better remedy by using herbs, which have potential to treat the PCOS.

Index Terms **- anti androgenic, insulin resistance, PCOS, Shatavari, Methi.**

I. INTRODUCTION

In today's global market, there is an urgent need for herbal formulations to treat lifestyle diseases like PCOS, thyroid, etc., due to growing awareness of the serious side effects of synthetic medications. One way to meet this demand is by creating herbal tablets and using modern techniques to evaluate them. The benefit of the unit dosage form of herbal tablets is their ease of administration and their capacity to cover up the bad taste and smell of the herbs. The chosen dosage forms, *Asparagus Racemosus* (roots), *Glycine max* (L) Merr (seeds), and *Trigonella frenum graecum* (seeds), have previously been documented to exhibit properties that stimulate insulin production, balance hormones, and counteract androgens.

Advantages of herbal medicines to treat PCOS :

- Herbs have a less side effect and safe treatment.
- Herbal medicine has a promotive preventive and curative role.
- Presence of multiple potential chemical which have another beneficial effect on body.
- Cost effective treatment than the synthetic medicines.[1]

Disadvantages of herbal medicines to treat PCOS.

- Individual responses to herbs can vary significantly.
- Herbs can interact with other medicines.
- Quality and purity of herbs can vary with the brand.
- Some drugs are contraindicated in the pregnancy.
- Poisoning form medicinal form has been reported.[2]

II. MATERIAL AND METHOD

Herbs like**, *Asparagus Racemosus* (roots), *Glycine max* (L) *Merr* (seeds), and *Trigonella frenum graecu*m (seeds),** were purchased from local Bhor market. And identified the active chemical constituents by performing the phytochemical testing in the Rajgad Dnyanpeeths college of pharmacy Bhor. (Pune)

Preparation of the polyherbal tablet to treat PCOS

The tablet was prepared by simple wet granulation method. All ingredients weighed and passed via sieve no. 20 to get free flowing powder. The powder was geometrically mixed and then dough prepared with 15 % potato starch water solution and then passed through sieve no. 20 and dried for 10 min. Then granules passed via sieve. No. 12. the granules along with the post granulating substance are ready for compression.

Preparation of tablet

Table no. 1 formulation chart of herbal tablet

Sr. No.	Ingredients	Quantity (mg)
1.	Shatavari	166
2.	Methi	166
3.	Soyabean	80
4.	Microcrystalline cellulose	50
5.	Potato starch (15%)	q. s.

Preformulation Studies

1. Phytochemical testing:

Table no. 2 Phytochemical Test

Test	Observation	Inference
• Shake vigorously aqueous extract of Shatavari	Stable foam	Saponins
• Methi extract + 2 ml of chloroform. Then 10 ml concentrated sulphuric acid added carefully and shaken gently.	Reddish brown color form	Terpenoids
• 2 ml of soyabean extract + 2-3 drops of sodium hydroxide	Deep yellow color	Flavonoids

Evaluation Of Granules :

1. Bulk density:

volume of weighed powder divided by bulk volume. Weighed powder introduced into the 25ml of measuring cylinder and volume was note down. And then bulk density was calculated by using,

Bulk Density = weight of powder / Bulk volume

2. Tap density :

After the calculating the bulk density, powder set by using the tap density apparatus within the same measuring cylinder. It was set at 100 taps drop per minute and operated for 500 taps. And the volume was noted.

Tap Density = weight of powder / Tap volume

3. Angle of repose :

Angle of repose is the maximum angle between surface of pile and horizontal surface. The ranges of angle of repose starts form 25 ˚ - 45 ˚. Lower values indicating better flow. Angle of repose was calculated by using,

$$\text{Tan } \theta = h / r$$

Where,

h = height of pile

r = radius of horizontal surface

the funnel is filled with powder and powder is allowed to pass slowly through the orifice of the pile under the influence of gravity. The pile was form below the funnel. The height and radius of funnel was calculated by using the above-mentioned formula.

4. Carr's index :

% compressibility calculated by using the carr's index. and carr's index calculated by using following formula,

Carr's index = Tap Density - Bulk Density / Tap Density

5. Hausner ratio :

Hausner ratio is the ratio of tap density to the bulk density.

Hausner ratio = Tap Density / Bulk Density

Evaluation of tablet after formulation

1. Hardness :

Hardness of tablet was calculated by using Monsanto hardness tester. Lower plunger placed in contact with the tablet, and zero reading was taken, then upper plunger was forced against the tablet and noted down the reading where the tablet was fractured.

2. Friability :

Friability of tablets were calculated by using the Roche Friabilator Initially 20 tablets weighed then tablets placed into the friabilator. And friabilator operate for 100 revaluations. The tablets were then dedusted and reweighed. The friability was calculated by using following formula,

Friability = 1 – (Initial weight of tablet ÷ final weight of tablet) × 100

3. Weight variation test :

20 tablets were selected randomly and then weighed individually and average weight was calculated. Then deviation of tablet form average weight was calculated and percentage deviation calculated.

4. Disintegration test :

Disintegration apparatus used to perform this test. 6 tablets were placed in each tube of basket. Temperature maintains at 37.50°. then tubes placed in the 1000 ml beaker containing 0,1 normal hcl. maintained at 37+2°C. The disintegration time is noted and is compared with IP specification.

The tablet containing polyherbal tablet contains powder of methi, shatavari, and soyabean, evaluated for the hardness, friability, weight variation and disintegration speed. Evaluation was shown in table no. 3

III. RESULT

Table No. 3 Evaluation of Preformulation

Sr. no.	Evaluation parameter	Limit	Observation	Result
1	Bulk density	-	0.64	-
2	Tap density	-	0.65	-
3	Angle of repose	25-45	40	Fair flow
4	Hausner's Ratio	< 1.45	1.05	Excellent flow
5	Carr's Index	< 5	1.01	Excellent flow

Table No. 4 Evaluation of Tablets

Sr. no.	Evaluation parameter	Limit	Observation	Result
1	Hardness	<8	5.33	Pass
2	Friability	<1%	0.7	pass
3	Disintegration Time	<15	5	pass
4	Weight variation	±5%	0.4 %	pass

IV. CONCLUSION

The study was undertaken with an aim to formulate a combine herbal tablet of shatavari, methi, soyabean for the treatment of PCOS. The result of the evaluation studies of granules revealed that granules have good and excellent flow as per the angle of repose and carr`s index. It was found that herbal tablet has sufficient hardness and friability as per the standard values. According to disintegration time and dissolution time result the tablet has good release. The amount of active available from the dosage after the release was studied using UV spectrophotometer.

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