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FORMULATION DEVELOPMENT AND EVALUATION OF TRIPHALA CHURNA

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ABSTRACT

The study was designed to formulate and pharmaceutically evaluate a herbal powdered drug Triphala Churna in to Triphala Tablet by incorporation of Senna Leaf Powder. The raw materials were procured, authenticated and standardized to determine their ash value, extractive value, moisture content and its chromatographic studies. The inhouse tablet was formulated and the evaluation parameters were studied for its weight variation, hardness testing, disintegration time test, friability test. Triphala Churna is used as a daily tonic to improve the digestion with a mild laxative propoties. We have incorporated Senna Leaf powder to the powdered drug and formulated in to a tablet dosage form to improve its therapeutic activity with respect to its laxative effect and the tablet form of Triphala is considered as one of the most preferred way of consuming it.

KEYWORDS: Triphala Churna, Triphala Tablet, Ash value, Extractive Values, Chromatography, Hardness Testing, Disintegration time test, Friability test.

INTRODUCTION

Natural products including plants offer large structural diversity of phytoconstituents to be used as various class of therapeutic agents to treat different ailment and modern techniques for extraction, isolation, structural elucidation, bioassays and formulation into various dosage forms. Synergistic effects are of vital importance in phytomedicines. Present study was designed to formulate Triphala tablets from Triphala churna incorporated with Senna leaf powder.In house Triphala churna was prepared and standardized by comparing with the marketed product, then it was formulated into tablet dosage form and the various evalution parameters were studied. Triphala churna is used as a daily tonic, was combined with Senna

leaf powder to enhance its laxative property. The prepared drug was developed into a tablet form to enhance the palatability of the users as one of the most preferred way of consuming it.

MATERIALS AND METHODS

Drug and Raw materials

Triphala churna (Procured from market)	Dabur India LTD.
Amla (*Embelica officinalis*) fruit	Procured from market
Harida (*Terminalia chabula*) fruit	Procured from market
Bahera (*Terminalia bebrica*) fruit	Procured from market
Senna (*Cassia angustifolia*) leaf	Procured from market
Lactose	Merck
Starch	Merck
Talc	Merck
Alchohol	Merck
Ethylacetate	Merck
Glacial acetic acid	Merck
Sulphuric Acid	Merck
Toluene	Merck
Anisaldehyde	Merck
Isopropanol	Merck
Methanol	Merck

Preparation of Tablets

Direct compression method has been employed to prepare Triphala tablets with Triphala churna and Senna leaf powder using Lactose, Starch, Talc as an excipients.

Method

All the excipients including drug were weighed accurately according to the batch formula(table-1).The drug was thoroughly mixed with lactose on a butter paper with the help of a stainless steel spatula. Then all the ingredients except lubricants were mixed in the order of ascending weights and blended for 20 minutes. After uniform mixing of ingredients the lubricant was added and again mixed homogeneously for 10 minutes. The prepared blend of each formulation was compressed on 08-station rotary tablet punching machine

(KV.Ahmedabad) at a pressure of 0.5 ton for 30s to form single layered flat faced tablet of 8mm diameter.

The average weight of tablets was 632mg.

Table 1: Formula: Each 5 tablets contain.

Sl. No.	Ingredients	Weight
1	Triphala churna with Senna leaf powder	1 gm
2	Lactose	1.5 gm
3	Starch	0.25 gm
4	Talc	0.5 gm

Evalution of Triphala Churna: (Marketed and In house preparation)

Comparative standardization of Triphala churna formulated by Dabur and inhouse formulation was planned to carry out development of quality standards for inhouse formulation.The standardized parameters planned to be carried out as follows:

- Determination of Physicochemical parameters:
- Total ash
- Acid insoluble ash
- Moisture content/ Loss on drying
- Water soluble extractive
- Aalcohol soluble extractive

The above parameters were studied by following standard procedures and result shown in Table-2.

Table-2

***Sample-1: Market product.**

Sample-2: Inhouse product.

Moisture content.

Sample-1	**1.25%**
Sample-2	**5.75%**

Ash value.

Powdered drug	Total ash(%w/w)	Acid insoluble ash(%w/w)
Sample-1	**7.5**	**2.62**
Sample-2	**7.21**	**2.60**

Extractive value.

Powdered drug	Water soluble extractive (%w/w)	Alcohol soluble extractive (%w/w)
Sample-1	**58**	**32**
Sample-2	**52.56**	**31.11**

Chromatographic study of Triphala churna with Senna leaf powder

Triphala churna blended with Senna leaf powder, used for preparation of tablet was analysed by TLC method.

Sample analysed Triphala churna with Senna leaf powder.

Solvent system

1. Toluene: Ethyl acetate: Glacial acetic acid: Formic acid

20:45:20:5

Detection- Anisaldehyde Sulphuric acid

Rf value- 0.68 and 0.8

2. Toluene:Ethyl acetate

1:1

Rf value – 0.17 and 0.35

3. Isopropanol:Ethyl acetate:Water

36:36:28

Rf value – 0.2,0.35,0.55 and 0.45

Evalution of Tablets

The prepared tablets were subjected to post compression parameters. The parameters studied are weight variation, hardness, friability & disintegration time test.

1. Weight variation test

Twenty tablets were selected at random and weighed individually. The individual weight was compared with the average weight for determination of weight variation.

Results shown in Table-3.

2. Hardness and Friability test

Hardness and Friability of the tablets were determined by using Monsanto hardness tester and Roche friabilator respectively.

Results shown in Table-4.

3. Disintegration time test

Disintegration time test was determined by using six basket disintegrator.

Result shown in Table-5.

Table-3: Weight and %weight variation of prepared tablets.

Tablets	Weight	Weight variation (%)
1	0.632	0.000
2	0.635	-0.473
3	0.640	-1.26
4	0.631	0.151
5	0.630	0.316
6	0.631	0.158
7	0.632	0.000
8	0.631	0.151
9	0.635	-0.473
10	0.634	-0.316
11	0.633	-0.158
12	0.630	0.316
13	0.630	0.316
14	0.633	-0.158
15	0.631	0.158
16	0.632	0.000
17	0.632	0.000
18	0.632	0.000
19	0.631	0.158
20	0.636	-0.632

Weight(Avg. & Total) of prepared tablets.

Parameters	Tablets
Avg. weight (gm)	**0.632**
Total Weight (gm)	**12.652**

Table-4: Hardness of prepared tablets.

Tablets	Hardness(kg/cm^2)
1	4.0
2	5.5
3	4.6
4	5.6
5	4.3
Avg. Hardness (kg/cm^2)	4.8

Table-5: Friability testing of prepared tablets.

Tablets	Avg.Wt. before test(g)	Avg. Wt. after test(g)	%loss in Avg. Wt.
Prepared tablets	12.652	12.644	0.06

Table-6: Disintigration time test of prepared tablets.

Tablets	Disintegration time (min.)
1	17.2
2	18.7
3	10.1
4	16.9
5	18.8
6	18.8
Avg. time (min.)	18.1

CONCLUSION

The expanding use of traditional and herbal medicines is gaining recognition globally.Not continue uses of herbal medicines, in primary health care in developing countries,but are becoming increasingly popular in those countries where conventional medicines are pre dominant. With this expansion the safety, efficacy and quality control of herbal medicines have become important concerns for the health authorities and the public.

Among solid dosageform, churna is the most ancient one in Ayurvedic medicine system. Triphala churna is very popular and potent ayurvedic formulation. The present study reveals that we have included senna leaf powder with Triphala churna which was compressed into a tablet form. The incorporation of Senna leaf powder enhances the laxative effects without hampering the organoleptic characters of the powdered drug.

Hence the present study justified that in solid dosage form, tablet is a better dosage form than traditional dosage form i.e. powder.

Tablet prefers easy administration than powder or churna, because powder is difficult to sallowing than tablets.It is also difficult for childrens, unless that will be shoked with water and filtered. Tablets are having an elegant organoleptic character, easy to carry, easy to use and easy to store.

Therefore it is concluded that “Triphala churna” the formulation was developed with inclusion of an another laxative drug & formulated into an acceptable dosage form i.e. tablet which will be a better dosage form to improve patient compliance.

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