Formulation And Evaluation Of Herbal Tablet By Using Licorice Root

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Abstract- *Peptic ulcer is a long term disease up to 10% of the world's population. The peptic ulcer formation also calculate the presence of gastric juice pH and reduce the mucosal defenses. With this objective, floating tablet containing aqueous extract of liquorice as drug become organized for the cure of Helicobacter pylori and gastric ulcers.*

Method *: HPMCk100M, licorice extract, microcrystalline cellulose, crospovidone and Acacia were prepared using direct compression method. Physical parameters of formulation such as Hardness, Thickness, weight variation test, organoleptic properties were assessed.*

Keywords- licorice extract, Gastric ulcer, Antiulcer activity.

I. INTRODUCTION

The word ulcer is derived from Latin word "ulcers" (genitive: ulcerous) which stands for sore, wound or an ulcer.(1)

Ulcer is a not common disease of the gastrointestinal system, which reasons an awful lot discomfort to patients, disrupting their every day exercises and reasons intellectual agony.(2) Peptic ulcers are a broad time period that consists of ulcers of digestive tract within side the belly or the duodenum. The formation of peptic ulcers relies upon at the presence of acid and peptic interest in gastric juice plus a fall apart in mucosal battlements.(3)

Natural drug treatments are taken into consideration as higher options for the remedy of peptic ulcer For Example, proton pump inhibitors (omeprazole, lansoprazole) might also additionally reason nausea, belly ache Due to the incidence of many facet results via way of means of use of artificial tablets for plenty Diseases, medicinal flora are taken into consideration as the principle source of latest tablets as they have got much less or No facet results . As natural drug treatments are taken into consideration as secure for the remedy of ulcers with lesser Adverse results , economical, effective, distinctly much less toxic, large studies is carried out less search for powerful antiulcer dealers of plant origin . (4)

It is an open sore or discontinuation in the lining of mucosa uncovered to acid and pepsin secretion.(5) As it's miles associated with pepsin secretion, for this reason the call peptic ulcer. (6) The peptic ulcers are of sorts i.e., gastric and duodenal ulcer.

The peptic ulcers are of two types:

1. Gastric ulcer: Ulcers occur in stomach are known as gastric ulcers.
2. Duodenal ulcer: Ulcer occurs in the duodenum are known as duodenal ulcer.(7) The risk factors of peptic ulcers:

- Smoke: Smoking may increase the risk of peptic ulcers people are infected with H. pylori
- Drink alcohol: Alcohol can irritate and erode the mucous lining of your stomach, and it increases the amount of stomach acid that's produce.
- Have untreated stress.
- Eat spicy foods. (8)

Causes of peptic ulcer disease:

- H. pylori infection
- NSAIDs
- Medications. (9)

Symptoms :

1. Burning stomach pain
2. Intolerance to fatty foods
3. Heartburn
4. Nausea
5. Lower part bleeding
6. Dry tongue
7. Weak or feeble pulse
8. Shortness of breath.

Treatment:

1) Reduce gastric acidity by mechanisms that inhibit or neutralize acid secretion,

2) Coat ulcer craters to prevent acid and pepsin from penetrating to the ulcer base,
3) provide a prostaglandin analog,
4) Remove environmental factors such as NSAIDs and smoking, and
5) reduce emotional stress (in a subset of patients).(10)

II. MATERIALS AND METHOD

Materials: The roots and rhizomes of the plant Glycyrrhiza glabra were purchased from local areas. HPMC K100M, microcrystalline cellulose, and crospovidone was obtained from chemical store. All chemical used were of analytical and pharmaceutical grade.

Method:

Preparation and standardization of aqueous extract from liquorice root.

The powdered liquorice root become extracted with distilled water containing ammonia. The extraction temperature become maintained at 90°C with regular shaking. The extract become filtered and focused to get a thick paste. The quantity of glycyrrhetinic acid within side the extract become decided via way of means of HPTLC.

Formulation Of Tablet :

In the current study, all the tablets were formulated by direct compression technique using polymer like; HPMC K100 M and other ingredients like; microcrystalline cellulose and crospovidone. All ingredient were passed through sieve no. 80 and weighed accurately on electronic balance. electronic balance. The extract, HPMCK100 M and crospovidone were mixed properly in a mortar and pestle to get a uniform tablet blend. The tablet blend was then weighed individually according to the formula and compressed into tablet using single punch tableting machine.

Table – 1

Ingredients	Quntity	Quntity
Licorice	450 mg	450 mg
Magnesium stearate	10 mg	5 mg
Crospovidone	25 mg	25 mg
Acacia	10 mg	10 mg
Lactose	5 mg	10 mg

Pre-Formulation study :

Bulk density and Tap density :
Both bulk density (BD) and tapped density (TD) was determined as per USP. A quantity of 10 gm of powder blend was introduced in to 25 ml measuring cylinder. After that the initial volume was noted and the cylinder was allowed to fall under its own weight on to a hard surface from the height of 2.5 cm at second intervals. tapping was continued until no further change in volume was noted. BD and TD were calculated using the following equations.
Bulk Density = Weight of the powder / Untapped volume of the packing
Tap Density = Weight of the powder / Tapped volume of the packing
Carr's Index (Compressibility index)
The Compressibility Index of the powder blend was determined by Carr's compressibility index. The formula for Carr's index is as below:
Carr's Index (%) = [(TD-BD) x100]/BD
Housner's ratio
Housner's ratio = Tap density/Bulk density

Angle of repose :

The angle of repose of powder blend was determined by the funnel method. Accurately weight powder blend was taken in the funnel. The height of the funnel was adjusted in such a way the tip of the funnel just touched the apex of the powder blend. The powder blend was allowed to flow through the funnel freely on to the surface. The diameter of the powder cone was measured, and angle of repose was calculated using the following equation.

$\tan \Theta = h/r$ Where, h – Height , r – Radius

Evaluation parameter of tablet :

The prepared floating tablets were evaluated for diameter and thickness using Vernier calipers. The hardness of the tablets was evaluated using a Monsanto hardness tester. Twenty tablets from each formulation were weighed and their average weight was determined.

Hardness : The hardness of five tablets was determined using the Monsanto hardness tester and the average values were calculated. It is expressed in Kg/cm2.

Thickness : The thickness of the tables was determined by using vernier calipers. Five tablets were used, and average values were calculated.

Weight variation test : To study weight variation twenty tablets of the formulation were weighed using a Sartorius electronic balance and the test was performed according to the official method.

Organoleptic properties : The colour and odour of the tablets were evaluated on visual and sensual basis.

Evaluation of formulated tablet :

Hardness : Hardness of the prepared tablets was observed within the range of 3.8to 4.2 kg/cm2.

Thickness : Thickness of floating matrix tablets was found in the range of between 3.2-3.6 mm.

Weight variation : Weight variation data of the prepared tablets indicated no significant difference in the weight of individual tablet from the average value.

Batch code	Hardness (kg/cm2)	Thickness (mm)	Weight variation (mg)
F1	4.2 ± 0.1	3.6 ± 0.1	576 ± 0.875
F2	3.8 ± 0.43	3.3± 0.14	576± 0.935

III. RESULT

The hardness in formulation was in the range 3.8 to 4.2 kg/ cm2. Thickness of tablet was found in the range of 3.2 to 3.6 mm. and weight variation range is 576 ± 0.875 mg.

IV. CONCLUSION

The tablet of licorice extract using HPMC k100M, microcrystalline cellulose, crospovidone were prepared. Formulated tablets were within acceptable limits for various physicochemical evaluation for tablets like hardness, thickness and weight variation. Formulated F1 confirmed accurate floating behaviour together with higher managed drug release. The end result indicate a promising ability of aqueous extract of licorice tablet as an opportunity to the traditional dosage form.

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