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Original Research Paper

Pharmacy

A REVIEW ON SOLID DISPERSION MULTILAYERED CAFEINE-CURCUMIN GRANULATED TABLET

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ABSTRACT Caffeine is a diuretic, antihypertensive, analgesic component. Caffeine is widely used as popular analgesic in gradient. Curcumin is derived from curcuma longa belonging to family Zingiberaceae. It is one of the popular chemical constituent having antiulcer effect. Here it is an attempt to enhance bioavaibility by formulation as solid dispersion granulated tablets. The initial stage ulcer patients can relieve pain and with a herbal wound healing effect of curcumin may result in eradication of peptic wound. Curcumin can be extracted by cold percolation method with acetone. And caffeine can be extracted from Cofea Arabica plant with boiling with water followed by chloroform swirling in separating funnel. Organic part can be removed by evaporation and caffeine can be collected out. Solid dispersion can be prepared by different grades of polymers like HPMC , PVP with urea. The solid dispersion has a capability of high dissolution rate. Rate of release from formulation can be studied by dissolution. The drug polymer stability can be studied by keeping them at various humidity range and temperature. FTIR and XRD may confirm the formulation and fusion of drug in polymer.

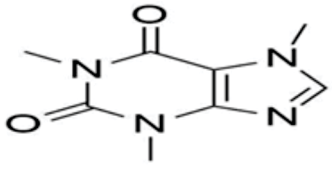
KEYWORDS : curcumin, peptic ulcers, X Ray diffraction , FTIR, percolation

INTRODUCTION:

Solid dispersion is the technology used to enhance dissolution rate by establishing drug polymer interaction. This technology is implemented for enhancing bioavaibility of poorly soluble drugs[1]. In this review two drugs curcumin and caffeine are formulated in solid dispersion. It may result in maximum bioavaibility in target. Here is an attempt to give analgesic drug to hypertensive, peptic ulcer patients a popular analgesic drug[2].. In peptic ulcer lining of stomach is sore or it may extend upto lower oesophagus and lower intestine. Peptic ulcer formed by H.pylori lead to inflammation. Here the review is an attempt to light on treatment for deulceration by curcumin with caffeine as anti-inflammatory drug [3].

MAIN TEXT:

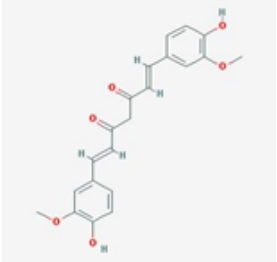
1.Caffeine is a xanthene derivative found naturally abundantly in Thea sinsensis and Cofea Arabica. [4].



caffeine

Colour : white, Odour : odourless,Taste : bitter, Solid : hygroscopic crystalline solid, Melting point : 235 ^{0}C

2.Curcumin :



Chemical Formula : $C_{21}H_{20}O_6$
Melting point: 183 °C (361 °F; 456 K)
Colour : Yellow
Odour : pungent and aromatic
Taste : pungent[5].
Solubilty : acetone, DMSO

Pharmacological effect of caffeine:

Caffeine influence diuresis by increasing rennin secretion and blood flow working at adenosine receptors. It acts on CNS to give analgesic effect. It reduce blood pressure by making diurectic activity. [6].

CURCUMIN AS ANTIULCER DRUG:

Curcumin is one of the largely researched compound as naturally occurred anticancer drug . It has shown potential results as anticancer drug. It has faster wound healing effect and anti-inflammatory effect. [7]. It has antioxidant effect also. So here it is reviewed to get data on wound healing study of ulcerated sample mouse.

Curcumin is derived from Curcuma longa belonging to family Zingiberacea. Curcumin can be extracted by cold percolation process. Acetone can be used as the solvent for extraction. [8].

Caffeine can be extracted from cafea Arabica or Thea sinsensis . It can be extracted by overnight percolation with hot water. Than followed by swirling in separating funnel with organic solvent chloroform. Chloroform can be evaporated after standing overnight and phase separation. Clear white crystalline substance obtained is nothing but caffeine. [8].

MULTILAYERED TABLET:

Tablet is the solid unit dosage form used popularly in the field of pharmaceutical research. Multilayered tablet is one of the tablet formulation in which different composition of drugs are present in different layer of tablets. Here in this review article it has been focused that two components caffeine and curcumin has to be two layers as the granules of curcumins can be identified as golden-yellowish colour. [9].

Method of preparation of solid dispersion

Solvent melting method:

Solvent melting method is one of the popular method of preparation of solid dispersion. In this method accurately weighed drug is dissolved in organic solvent. The solution is incorporated into melt polymer and has to be cooled suddenly. The mass has to be dried and to be kept in desecrator. The dried mass to be crushed, pulverized to be passed through sieve. It makes fusion of polymers and drug.

Preparation of granules:

The granules can be prepared by general wet granulation techniques from the obtained solid dispersion separately of caffeine and curcumin. .

Procedure for preparation and evaluation of formulation – A review

Curcumin and caffeine can be collected from above preparation process. As turmeric and coffee, tea are abundantly found crude drugs India. After extraction of the drugs it can be studied in vitro with animal specimen for pharmacological effect. It can be wound healing effect or peptic ulcer relieving effect.

The extracted drugs can then be formulated in solid dispersion. In which it can enhance bioavaibility. It can be studied by UV spectro photometer or visible spectrop hotometer.

The rate of dissolution can be studied by dissolution test apparatus. And the drug polymer binding can be confirmed by FTIR or XRD technique.

From the solid dispersion granules can be obtained . Granules can be compressed differently in a tablet. It has to be formed in layered tablets.

With help of different excipients formulations . various formulations can be studied by rate of dissolution.

CONCLUSION:

Here is an attempt to give analgesic drug to hypertensive, peptic ulcer patients a popular analgesic drug. In peptic ulcer lining of stomach is sore or it may extend upto lower oesophagus and lower intestine. Peptic ulcer formed by H.pylori lead to inflammation. Here the review is an attempt to light on treatment for deulceration by curcumin with caffeine as anti-inflammatory drug. . [9]

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