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Review On Natural Binders

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ABSTRACT

Binders are the agents used to increase the adhesiveness into the dosage form, where tablet formations contains binders that increase bond interaction between them. The various natural binders are used as binding agents, there are two type of binders according to the sources i.e natural and synthetic, where natural binders for binding includes gum acacia , gum tragacanth, starch etc. The scientist trying to novel ingredients for efficient use as binding purpose for dosage manufacturing for process. Binding agent shows response by modifying physiochemical properties such as size and the hardness nature of dosage forms.

KEYWORDS- Binders, Natural, Tablet, Gum acacia, Formulations, Excipients etc.

INTRODUCTION

The excipients and components employed during the production process directly affect the biological, chemical, and physical quality of the dosage form. The drug's excipient and API are both present in the dose form. The concentration, interaction, and choice of material all directly affect the dose qualities.

The project's objective is to constantly supply the medication to the patient during the product's shelf life in the needed quantity, at the required rate, and within or between batches. Nowdays Various types of binding agents used in tablet formulation for plasticity and to increase bonding strength of the dosage form.

There are various natural binders present which used as binding agent such as mainly gum which is polysaccharide having polymeric in nature which mainly obtained from the trees by the parts like barks, wools, roots etc. Gum Is Water partially soluble in nature. The Gum shows adhesivness by absorbing water they become viscous in nature.

Binders are excipients that are utilized in the manufacture of dosage forms to bind or hold all of the constituents together. In formulation, binders are combined to impart plasticity or strengthen the connection between the particles

It is crucial to guarantee that the formulations are made in accordance with the desired physical strength and quantity by gripping the constituents in tablets and granules that have been increased by binders.

Binders used as in powder and aqueous form & addition when granules which are moist need to be compacted or when the sufficient quantity of the granules or adhesiveness ingredients needs to increased. Binders provide mechanical strength to the tablet and come in two varieties: powder and liquid. Examples of powder binders

include cellulose and methyl cellulose, while liquid binders include gelatin and PVP. To ensure that the binder is evenly distributed, it can be added as a powder before wet agglomeration. Liquid binders are also known as conglomerate moist granular liquid in solution composition.

A dry substance is drawn together with the addition of liquid binders so that it retains a consistent consistency and becomes a more solid structure. For instance, Xanthan and Guar gums are plant-derived powders that are employed as binding agents in vegan cookery to substitute eggs or in gluten-free baking to mimic the binding activity of gluten. They make water more sticky and viscous after being added. When combined with additional components, such as flour, their binding properties are brought into play.

Pharmaceutical excipients

Adding binders to the compound usually increases the strength of the tablet. Increase The strength of the tablet is influenced by properties related to both the binder and the compounds and they will be discussed in the next section. The power of tablets consists of a mixture that is superior to tablets normally made up of individual materials refers to a synergistic effect.

ADVANTAGES

1)It can also be used to modulate drug release and thereby influence absorption.

Bioavailability of incorporated drugs.

2) Natural binders are often used as auxiliaries and additives in the pharmaceutical and food industries.

Low toxicity, biodegradability, availability, low cost

DISADVANTAGES

1)Polymer binders can lead to processing difficulties such as rapid excessive granulation, increased tablet hardness

& dissolving efficiency decreased

2) When choosing a polymer binder, it is often necessary to add strong disintegrators, but this is

significantly costly and has a negative impact on product stability

IDEAL PROPERTIES OF BINDERS

• Physiologically inert.

• Accepted by regulatory authorities.

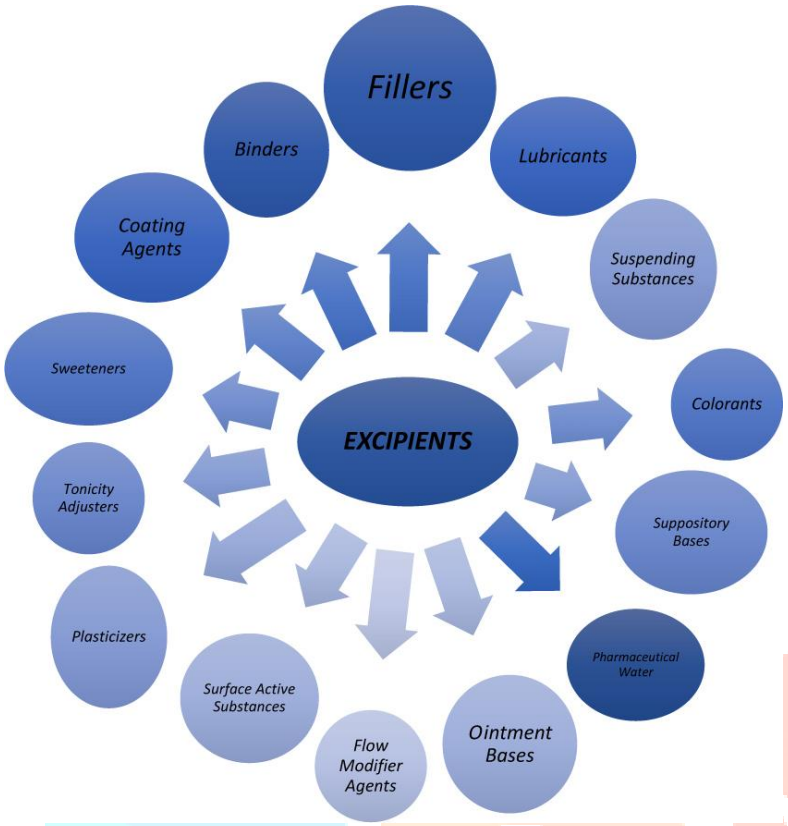
• Physiological and chemical stability.

• Available in the market in a stable form. • Meet the standards of regulatory requirements.

• Not expected to interfere with drug bioavailability.

-Capable of compacting tablets directly.

There are various expients which are used as to formulate the dosage forms are as follows



VARIOUS BINDERS EXAMPLES

POTATO

The use of potato starch as wallpaper glue is well-known. It comes in a packet as a dry substance that must be combined with water in order to activate it. Then it will change into jelly glue. Many potatoes are not used for food but rather for a variety of purposes, such as enhancing beer froth or being mixed with glue in building to adhere ceramic tiles to walls.

GUM ACACIA

It is a combine mixture of polyose and carbs like sugars. In the food business, it is frequently employed as an emulsion stabilizer. Acacia gum is used in granulation either dry or in an aqueous solution. It is a superb binder since it produces granules and tablets that are incredibly durable.

DRUM STICK

When exposed to light, the gum that emerges from the tree's stem turns from white to reddish brown to brownish black. It is only weakly soluble in water, but when it comes into contact with water, it expands, creating an extremely viscous solution. Glucoronic acid, galactose, and arabinose make up its polyuronide composition.

GUM TRAGACANTH

One of the most popular natural gums in the world is tragacanth gum, which is frequently used in the textile, pharmaceutical, and food industries as a stabilizer, thickening, emulsifier, moisturizer, or binding/adhesive agent.

XANTHAN GUM

Many foods' texture, consistency, flavor, shelf life, and appearance can all be enhanced with xanthan gum. Additionally, it stabilizes food, enabling some meals to survive a range of temperatures and pH levels. Furthermore, it stops meals from separating and makes it possible for them to easily flow out of their containers.

CANDELILA WAX

Candelilla wax serves as a plasticizer, viscosity modifier, emollient, thickening and hardening agent, and a skin-protective barrier agent that aids in preventing moisture loss from the skin. It acts by neourshing the surface area of the skin and it obtains brightening and acts as stabilizer emulsification, with fast diffusion. creas or lines and having older age signs like wrinkles and age spots will get reduced when application of candelilla wax. It is also supposed to moisturize dry, flaky skin for improved smoothness. The strong binding property of candelilla wax makes it simple to combine substances. Due to this characteristic, it can be easily incorporated with the majority of other waxes and resins, both natural and synthetic.

STARCH

Starch is a widely used natural polymer that is commonly used as a binder. It is pre- gelatinised for optimal binding and dissolving properties. Starch is also used as a filler in many food applications, acting as a thickening, stabilizing, gelling, and/or filling agent. It is also a common excipient used in medicinal formulations, primarily as a filler, binder, or disintegrant in tablets. Starch is found in the form of granules .

KARAYA GUMS

Karaya gums are sap like structure which present and grown in trees of India . It has various medicinal uses over the diseases and the drug formulations .These gums acts by swelling in intestine which helps to push out the material present into body The karaya gum for the purpose of viscosity enhancer in beauty products, tooth adhesion enhancers and binder and stabilizers in daily consumes

Sr.no	Product	Type	Uses
1	Potato	Starch	Sauces and soups
2	Gum acacia	Gums	Binder in Baking
3	Gum tragacanth	Gums	Binders in icing , tablets, incens and pastle paints
4	Xanthan	Gums	Binders in toothpaste , laxative and baking
5	Candelila	Wax	Binders in chewing gums
6	Drum sticks	Resins	Binders used in formulations for toothache, gelling and thickening agent
7	Karaya	Gums	Binders in baking and paper manufacturing

CONCLUSION

The applicability of gums is well established in the pharmaceutical field. Gum can be used as a binder. They have shown good potential as a binder agent as well as possessing other properties such as fillers, decomposers, issuing agent. A variety of natural polymers have been used in drug formula. As a binder, can using natural ingredients such as starch, mucilage, gum. Naturally derived polymers have demonstrated strong bonding properties in wet granulation, with more granulation more stable and less friable than alternative adhesives. they can too used to modify drug release, modify the combined absorption of the drug and its subsequent bioavailability. In addition, they act as transporters that transport ingested food. drug at the site of absorption and aim. Maintain drug stability,

improve organoleptic properties medication as needed for accuracy and precision of dosing and patient compliance. They should optimize the dosage performance both in the production process and in the patient consumption.

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