



USE OF INULINE AS A SUPPORTING SUBSTANCE IN THE TABLET TECHNOLOGY

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ABSTRACT

Scientific studies on the use of inulin as a binder for solid medicine forms are presented. For active substances with different physical-chemical properties, inulin solution has been studied as a binder in relation to traditional starch slime, and its use as a binder in the manufacture of medicines has been found expedient.

KEYWORDS: *inulin, binder, technology, tablet, appearance, hardness, breakage, disintegration.*

DISCUSSION

It is known that today the development of the pharmaceutical industry, the launch of production of products that meet the requirements of world standards of quality of the finished product is one of the urgent tasks.

According to the literatur, a substance that treats diabetes - inulin and biologically active additives based on it is obtained from the topinambour tubers (*Helianthus tuberosus* L.). We first proposed inulin as a binder for solid drug forms. The aim of proposing inulin as a binder is that inulin itself is widely used to reduce the amount of sugar in the body in patients with diabetes. If it is used as a binder when taking a pill, it can not only acts as a filler but also acts as a lowering sugar in addition to the drug's effect on the pill itself. Therefore, we aimed to conduct scientific research on the application of a new local excipient as an inulin binder in the tablet technology [1-4].

Inulin is a white, odorless, water-soluble, powdered substance. To use of inulin as a binder the active substances with the following different physicochemical properties: phytin, ampicillin, rutin

and ascorutin (a mixture consisting of ascorbic acid and rutin) were obtained. Each mass was compressed using 5% starch slurry and 1.3 and 5% inulin solutions, which are widely used on an industrial scale. The masses were made in the traditional way by wet granulation. 1% antifriiction agent (calcium stearate) was added to the prepared masses for grinding. Then sample tablets were prepared from the prepared masses. The sample tablets were pressed using a mold with a diameter of 11 mm, a mass of 0.5 g tablets with a pressure of 120 MPa using a hydro-press. In the first step of the study, the following quality indicators were studied: appearance, uniformity of the tablet surface, refractive hardness and disintegration of the tablets according to the methods described in the scientific literature. The interaction of active and excipients was also emphasized during the experiments. The prepared tablets were stored in glass jars with screw caps BS 64 - 2 - 71 - 80, approved for medical use, and stored at room temperature.

The results obtained on the quality of tablets based on starch slurry are given in Table 1.

Table 1

The results of the study of the effect on the quality of tablets based on 7% starch slurry

The indicator under study, a unit of measurement	Name of the active substance			
	Phytin	Rutin	Ampicillin	Ascorutin
Appearance	Specific color, whole edges, glossy tablet			
Hardness: - refractive index, H	85,0	78,0	80,0	74,0
Disintegration, C	480,0	300,0	660,0	540,0



It can be seen from the table that when the appearance of the tablets based on 7% starch slurry was organoleptically examined, it was found that the tablets studied had a specific color, glossy appearance and whole edges, refractive hardness and

disintegration and these features might meet the relevant ND requirements. In our subsequent studies, the quality indicators of tablets based on 1.3 and 5% inulin were determined. The results of the experiment are given in Table 2.

Table 2
Results of the study of the effect on the quality of tablets prepared on the basis of inulin solution in different percentage

The indicator under study, a unit of measurement	Name of the active substance			
	Phytin	Rutin	Ampicillin	Ascorutin
1% - inulin solution				
Appearance	Specific color, whole edges, glossy tablet			
Hardness: - refractive index, H	85,0	76,0	78,0	60,0
Disintegration, C	660,0	480,0	660,0	420,0
3% - inulin solution				
Appearance	Specific color, whole edges, glossy tablet			
Hardness: - refractive index, H	95,0	88,0	87,0	80,0
Disintegration, C	720,0	600,0	780,0	600,0
5% - inulin solution				
Appearance	Specific color, whole edges, glossy tablet			
Hardness: - refractive index, H	100,0	94,0	90,0	86,0
Disintegration, C	> 900,0	> 960,0	>900,0	780,0

We can see in table 2 that the appearance of tablets based on 1 and 3% inulin solution has a specific color, glossy appearance and whole edges, refractive hardness and disintegration meet the relevant ND requirements. Although the appearance of the tablets prepared with 5% - inulin solution was at the required level, the disintegration of the complex ascorbutin tablet was found to be satisfactory due to the high refractive index of the tablets, and the disintegration of the remaining tablets did not meet the relevant ND requirements. Its 5% solution can be used as a binder for solid medicine forms with prolonged effect.

It was found expedient to use 1 and 3% solutions of inulin when comparing the proposed inulin

solution as a binder for solid medicine forms with 7% starch slurry.

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