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REVIEW ARTICLE

SUPERDISINTEGRANTS- CURRENT APPROACH

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ABSTRACT

The desire of improved palatability in orally administered products has prompted the development of numerous formulations with improved performance and acceptability. Orally disintegrating tablets are an emerging trend in novel drug delivery system and have received ever-increasing demand during the last few decades. This is achieved by decreasing the disintegration time which in turn enhances drug dissolution rate. Disintegrants are substances or mixture of substances added to the drug formulation that facilitates the breakup or disintegration of tablet or capsule content into smaller particles that dissolve more rapidly. Superdisintegrants are used to improve the efficacy of solid dosage forms. Superdisintegrants are generally used at a low level in the solid dosage form, typically 1- 10 % by weight relative to the total weight of the dosage unit. Diverse categories of Superdisintegrants such as synthetic, semi-synthetic, natural and co-processed blends etc. have been employed to develop effectual mouth dissolving tablets and to overcome the limitations of conventional tablet dosage form. The present study describes the various types of Superdisintegrants which are being used in the formulation to provide the safer, effective drug delivery with patient's compliance.

Key Words: Superdisintegrants, Synthetic, Natural, mango peel pectin, fenugreek seed mucilage.

INTRODUCTION:

The oral route of administration still continues to be the most preferred route due to its diverse advantages including ease of administration, precise dosage, self-medication, versatility and most importantly patient compliance. Therefore, oral solid dosage forms are more popular. Fast dissolving tablets (FDT) are a solid single-unit dosage form that are placed in mouth, allowed to disperse/dissolve in the saliva without the need of water and provides a quick onset of action.[1] The disintegration time for FDTs generally ranges from several seconds to about a minute. The bioavailability of some drugs may be increased due to absorption of drugs in oral cavity and also due to pre gastric absorption of saliva containing dispersed drugs that pass down into the stomach. Moreover, the amount of drug that is subjected to first pass metabolism is reduced as compared to standard tablet.[2]Disintegrants are agents added to tablet and some encapsulated formulations to promote the breakup of the tablet and capsule "slugs' into smaller fragments in an aqueous environment there by increasing the available surface area and promoting a more rapid release of the drug substance. They promote moisture penetration and dispersion of the tablet matrix.[3]The disintegrants have the major function to oppose the efficiency of the tablet binder and the physical forces that act under compression to form the tablet. The stronger the binder, the more effective must be the disintegrating agents in order for the tablet to release its medication. Ideally, it should cause the tablet to disrupt, not only into the granules from which it was compressed, but also into powder particles from which the granulation was prepared.[4]Superdisintegrants provide quick disintegration due to combined effect of swelling and water absorption by the formulation. Due to swelling of Superdisintegrants, the wetted surface of the carrier increases, which promotes the wettability and dispersibility of the system, thus enhancing the disintegration and dissolution? Effective Superdisintegrants provide improved compressibility, compatibility and have no negative impact on the mechanical strength of formulations containing high - dose drugs.[5]

SELECTION CRITERIA FOR SUPERDISINTEGRANTS

Superdisintegrants are selected on the basis of the following properties.

1. It is compactable enough to produce less friable tablets.
2. The good mouth feeling produced to patient's thus small particle size preferred to achieve patient compliance.
3. It should have good flow, since it improves the flow characteristics of total blend.
4. It should have rapid disintegration, when tablet comes in contact with saliva in the mouth/oral cavity. [7]

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MECHANISM OF ACTION OF SUPERDISINTEGRANTS

Superdisintegrants act by different mechanism of action.

1. Capillary action
2. Swelling
3. Heat of wetting
4. Due to release of gases
5. Enzymatic action
6. Due to disintegranting particle/particle repulsive forces
7. Due to deformation
8. Chemical reaction (acid base reaction)

1. Capillary action

Disintegration by capillary action is the first step. When we the put the tablet into suitable aqueous medium, the medium penetrates into the tablet and replaces the air adsorbed on the particles, which weakness the intermolecular bond and breaks the tablet into fine particles. Water uptake by tablet depends upon hydrophilicity of the drug /excipients and on tabletinging conditions. For these types of disintegrants, maintenance of porous structure and low interfacial tension towards aqueous fluid is necessary which helps in disintegration by Creating a hydrophilic network around the drug particle. [8]

2. Swelling

Swelling is believed to be a mechanism in which certain disintegrating agents (such as starch) impart the disintegrating effect. By swelling in contact with water, the adhesiveness of other ingredients in a tablet is overcome causing the tablet to fall apart .E.g. Sodium starch glycolate, Platago Ovata. [9, 10]

3. Heat of wetting

When disintegrants with exothermic properties get wetted, localized stress is created due to capillary air expansion, which helps in disintegration of tablet. This explanation, however, is limited to only a few types of disintegrants and cannot describe the action of most modern disintegrating agents.

4. Due to release of gases

Carbon dioxide released within tablets on wetting due to interaction between Carbonate and Bicarbonate with citric acid or tartaric acid. The tablet disintegrates due to generation of pressure within the tablet. This effervescent mixture is used when pharmacist needs to formulate very rapidly dissolving tablets or fast disintegrating tablet. As these disintegrants are highly sensitive to small changes in humidity level and temperature, strict control of environment is required during manufacturing of the tablets. The effervescent blend is either added immediately prior to compression or can be added in to two separate fraction of formulation.

5. By enzymatic action

Enzymes present in the body also act as disintegrants. These enzymes destroy the binding action of binder and helps in disintegration. Actually due to swelling, pressure is exerted in the outer direction that causes the tablet to burst or the accelerated absorption of water leads to an enormous increase in the volume of granules to promote disintegration. [11]

6. Due to disintegranting particle/particle repulsive forces

Another mechanism of disintegration attempts to explain the swelling of tablet made with 'nonswellable' disintegrants. Guyot-Hermann has proposed a particle repulsion theory based on the observation that non swelling particle also cause disintegration of tablets. The electric repulsive forces between particles are the mechanism of disintegration and water is required for it. Researchers found that repulsion is Secondary to wicking. [12]

7. Due to deformation

Starch grains are generally thought to be "elastic" in nature meaning that grains that are deformed under pressure will return to their original shape when that pressure is removed. But, with the compression forces involved in tableting, these grains are believed to be deformed more permanently and are said to be "energy rich" with this energy being released upon exposure to water. In other words, the ability for starch to
Swell is higher in "energy rich" starch grains than it is for starch grains that have not been deformed under pressure. [13]

8. Chemical reaction (acid base reaction)

The tablet is quickly broken apart by internal liberation of CO2 in water due to interaction between tartaric acid and citric acid (acids) with alkali metal carbonates or bicarbonates (bases) in presence of water. The tablet disintegrates due to generation of pressure within the tablet. Due to liberation in CO2 gas, the dissolution of active
Pharmaceutical ingredients in water as well as taste masking effect are enhanced. As these disintegrants are highly sensitive to small changes in humidity level and temperature, strict control of environment is required during preparation of the tablets. The effervescent blend is either added immediately prior to compression or can be added in two separate fraction of formulation resulting electrical force.

TYPES OF SUPERDISINTEGRANTS

Broadly speaking there are two types of Superdisintegrants:-

1. Natural Superdisintegrants
2. Synthetic Superdisintegrants

1. NATURAL SUPERDISINTEGRANTS

These superdisinegrating agents are natural in origin and are preferred over synthetic substances because they are relatively cheaper, profusely available, non-irritating and nontoxic in nature. The natural materials like gums and mucilage's have been extensively used in the field of drug delivery for their easy possibility, Eco friendliness, and cost multitude of chemical modifications, potentially degradable and compatible due to natural origin. There are several gums and mucilages are available which have super- disintegrating avtivity. [14]

1. Plantago ovata seed mucilage (isapghula)

Isapghula consists of dried seeds of the plant plantago Ovata. It contains mucilage which is present in the epidermis of the seeds? The seeds of Plantago ovata were soaked in distilled water for 48 hrs and then boiled for few minutes for complete release of mucilage into water.

The material was squeezed through muslin cloth for filtering and separating out the marc. Then, an equal volume of acetone was added to the filtrate so as to precipitate the mucilage. The separated mucilage was dried in oven at temperature less than 60°C [15]. The mucilage of plantago ovata is a recent innovation for its super disintegration property when compared with Crospovidone. It shows faster disintegration time than the superdisintegrant, Crosspovidone. [16-17]

2. Fenugreek seed mucilage

Trigonella Foenum-graceum, commonly known as Fenugreek, is an herbaceous plant of the leguminous family. It has found wide applications as a food, a food additive, and as a traditional medicine. The leaves and both the ripe and unripe seeds of Trigonella Foenum-graceum are used as vegetables. Fenugreek has been used in treating colic flatulence, dysentery, diarrhoea, dyspepsia with loss of appetite, chronic cough, dropsy, enlargement of liver and spleen, rickets, gout, and diabetes. It is also used as gastro protective, anti urolithiatic, diuretic, antidandruff agent, Anti-inflammatory agent and as antioxidant. The seed is stated to be a tonic [18.] It also is used in post-natal care and to increase lactation in nursing mothers. Fenugreek seeds contain a high percentage of mucilage (a natural gummy substance present in the coatings of many seeds). Although it does not dissolve in water, mucilage forms a viscous tacky mass when exposed to fluids. Like other mucilage-containing substances, fenugreek seeds swell up and become slick when they are exposed to fluids. The resulting soft mass is not absorbed by the body, but instead passes through the intestines and triggers intestinal muscle contractions. [19]

3. Guar gum

Guar gum is a galactomannan, commonly used in cosmetics, food products and in pharmaceutical formulations.Guar gum is mainly consisting of the high molecular weight (approximately 50,000-8,000,000) polysaccharides composed of galactomannans and is obtained from the endosperm of the seed of the guar plant, Cyamopsistetragonaloba (L) Taub. (Synonym-Cyamopsispsoraloides). It is used as thickener, stabilizer and emulsifier, and approved in most areas of the world (e.g. EU, USA, Japan, and Australia) [20]. Its synonyms are Galactosol; guar flour; jaguar gum; meprogat; meyprodor. It has also been investigated in the preparation of sustained release matrix tablets in the place of cellulose derivatives such as methylcellulose. In pharmaceuticals, guar gum is used in solid-dosage forms as a binder and disintegrant, and in oral and topical products as a suspending, thickening, and stabilizing agent, and also as a controlled-release carrier. Guar gum has also been examined for use in colonic drug delivery. [21, 22]

4. Gum karaya

Gum Karaya is a negative colloid and a complex polysaccharide of high molecular weight. On hydrolysis it yields galactose, rhamnose and galacturonic acid. Gum Karaya occurs as a partially acetylated derivative. It is a dried exudation of sterculiaUrenstree (Family-Sterculiaceae). Its synonyms are Karaya, sterculia, Indian tragacanth, Bassoratragacanth, kadaya, Kadira, katila. Gum Karaya is compatible with other plant hydrocolloids as well as proteins and carbohydrates. [23, 24,

5. Locust bean gum

Locust bean gum is extracted from the endosperm of the seeds of the carob tree Ceretoniasiliqua, which grows in Mediterranean countries. It is also called Carob bean gum. Some other familiar polysaccharides are starch and cellulose, which are made of long chains of the sugar glucose. In locust bean gum, the ratio of mannose to galactose is higher than in guar gum, giving it slightly different properties, and allowing the two gums to interact Synergistically so that together they make a thicker gel than either one alone. It shows as a binder and as a disintegrant property at different concentration. Pharmaceutical application of locust bean gum in various novel drug delivery systems. Locust bean gum has been widely used in food industry as a thickening and gelling agent. Locust bean gum has also been reported to have bio adhesive and solubility enhancement properties. There are various reports that Locust bean gum can be used in pharmaceutical and biotechnological purpose. [25, 26]

6. Mango peel pectin

Dried mango peel powder is use for extracting pectin. Rather mango peel pectin cannot be used for promising the behaviour of superdisintegrants, but due to its good swelling index and good solubility in biological fluids it can be used to prepare fast dispersible tablets. [27]

7. Gellan gum (kicogel)

It is an anionic polysaccharide of linear tetra saccharides, derived from Pseudomonas elodea having good superdisintegrants property similar to the modified starch and celluloses. Antony et al studied the disintegrate properties of gellan gum and the efficiency of gum was compared with the other conventional disintegrants such as corn starch, explotab, avicel, Ac-di-sol and Kollidon Cl.[28]

8. Xanthan gum (Grindsted, xanthansm)

Xanthan Gum derived from Xanthomonas campestris is official in USP with high hydrophilicity and low gelling tendency. It has low water solubility and extensive swelling properties for faster disintegration. [29]

9. Soy polysaccharide (Emcosoy)

It is a natural superdisintegrants that does not contain any starch or sugar so can be used in nutritional products. Soy polysaccharide (a group of high molecular weight polysaccharides obtained from soy beans) as a disintegrant in tablets made by direct compression using lactose and dicalcium phosphate dehydrate as fillers. A cross-linked sodium carboxy-methyl cellulose and corn starch were used as control disintegrants. Soy polysaccharide performs well as a disintegrating agent in direct compression formulations with results paralleling those of cross-linked CMC [30]

10. Lepidium stadium mucilage

(Family: Cruciferae) is known as asaliyo and widely used as herbal medicine in India. It is widely available in market and has very low cost. Parts used are leaves, root, oil, seeds etc. Seeds contain higher amount of mucilage, dimeric imidazole alkaloids lepidine B, C, D, E and F and two new monomeric imidazole alkaloids semi lepidinoside A and B. Mucilage of Lepidium Sativum has various characteristic like binding, disintegrating, gelling etc. Hence a method is developed to isolate the mucilage from seeds and its use to develop the fast dissolving tablet in a study [31, 32]

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11. Agar

Agar is the dried gelatinous substance obtained from Gelidium amansii (Gelidanceae) and several other species of red algae like, Gracilaria (Gracilariaceae) and Pterocadia (Gelidaceae). Agar is yellowish gray or white to nearly colourless, odourless with mucilaginous taste and is accessible in the form of strips, sheet flakes or coarse powder. Agar consists of two polysaccharides as agarose and agaropectin. Agarose is responsible for gel strength and Agaropectin is responsible for the viscosity of agar solutions. It is a potential candidate to act as a disintegrant due to its high gel strength .Gums are used in concentration from 1 to 10%. However, these are not as good disintegrating agents as others because capacity development is relatively low. [33]

12. Aloe Vera

Aloe belongs to the family, Liliaceae, and includes the species Aloe barbadensis Miller, commercially known as Aloe Vera. Fast dissolving tablets offer the combined advantages of performance, convenience, rapid onset of action and patient compliance and allow administration of an oral solid dose form in the absence of water or fluid intake. When placed on the tongue, it disintegrates instantaneously, releasing the drug which dissolves or disperses in the saliva. Pharmaceutical formulators often face the challenge of finding the right combination of formulation variables that will produce a product with optimum properties. [34-36]

13. Hibiscus Rosa sinesis linn Mucilage

Hibiscus Rosa sinensis linn. Of the Malvaceae family is also known as the shoe flower plant, China rose, Chinese hibiscus. The plant is available in Indian in large quantities and its mucilage has been found to act as superdisintegrant. The plant contains cyclopropanoids, methyl sterculate, methyl-2-hydroxysterculate, 2-hydroxysterculate malvate and β-rosasterol. Shah *et al*. Prepared orally disintegrating tablets of Acelofenac by direct compression method using mucilage of Hibiscus Rosa–sinensis linn.with 6 % w/w concentration, which showed disintegration time of 20 sec. [37, 38]

14. Cucurbita maxima pulp powder

Disintegrating properties of cucurbita maxima pulp powder. Dispersible tablets of Diclofenac sodium were prepared with different concentrations viz; 2.5, 5, 7.5 and 10 % (w/w) of cucurbita maxima pulp powder and sodium starch glycolate, and evaluated for physical parameters such as thickness, hardness, friability, weight variation, drug content, disintegration time and drug dissolution. The formulated tablets had good appearance and better drug release properties. Studies indicated that the cucurbita maxima pulp powder is a good pharmaceutical adjuvant, specifically a disintegrating agent. [39]

15. Ocimum americanum seed mucilage

Seed mucilage from Ocimum americanum linn. as disintegrate in tablets using propranolol hydrochloride as a model drug .The separated mucilage was evaluated for its performance as disintegrate in tablets at various concentrations (2, 4, 6, 8, 10, 12%w/w) and the optimum concentration found was 10%w/w. Its performance was compared with starch at optimum concentration and it was found better than starch in tablet formulations with less disintegration time (154 s) compared to that of starch (269 s). The hardness, friability and drug content were within limits. There was no effect of mucilage on drug release from tablets as all the formulations showed more than 90 % drug release at 30 min. [40]

16. Cassia fistula gum

Seeds of Cassia fistula gum obtained from cassia fistula tree. Gum obtained from the seeds of Cassia fistula comprises β-(1→4) linked d-mannopyranose units with random distribution of _α (1→6) linked d-galactopyranose units as side chain having mannose: galactose ratio of 3.0). Carboxymethylation as well as carbamoylethylation of Cassia gum is reported to improve cold water solubility, improve viscosity and increase microbial resistance as compared to native gum Therefore, an attempt was made to incorporate calcium or sodium salts of carboxymethylated or carbamoyl ethylated C. fistula gum as Superdisintegrants in the formulation development of FDT. [41]

17. Chitosan

Chitosan is a natural polymer obtained by deacetylation of chitin which is the second most abundant polysaccharides in nature after cellulose. Superdisintegrants property of chitosan has been utilized to develop a fast mouth dissolving tablet by utilizing a novel met. Similar to the other Superdisintegrants chitosan too generously engulf water when in contact with aqueous media and burst due to the pressure exerted by their capillary action thereby impart instantaneous disintegration of the dosage form and resulting in formation of a uniform dispersion in the surrounding media which behave like a true suspension formed inside the body leading to rapid and complete absorption of drug. [42]

Table 1: List of natural Superdisintegrants used in formulations

Name of Drug	Superdisintegrants	Method of Compression	Ref
OndansetronHCl	Plantago Ovata husk	Direct Compression	13
GranisetronHCl	Plantago Ovata husk	Direct Compression	54
Amlodipine Besylate	Plantagoovata mucilage	Direct Compression	55
Fexofenadine HCl	Plantagoovatamucilage, Plantagoovata Husk powder, Plantago ovata Seed powder	Direct Compression	56
Famotidine	Plantago ovateMucilage, Seed powder	Non-aqueous wet granulation method	57
Nimesulide	LepidumSativum	Direct Compression	28
Ofloxacin	Locust Bean gum	Solvent Evaporation Method	58
Nimesulide	Locust Bean gum	Direct Compression	59
Piroxicam	Treated Agar	Direct Compression	60
Metoclopramide HCl	Cassia fistula gum	Direct Compression	61

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Table 2: List of synthetic Superdisintegrants used in formulations

Drug	Superdisintegrants	Method	Ref
Valsartan	Crodpovidone Ac-Di-Sol Sodium Starch glycolate	Direct Compression	62
Carvedilol	Cross Povidone Cross carmellose sodium Sodium Starch glycolate	Direct Compression	63
Gliclazide	Crossdpovidone Ac-Di-Sol Sodium Starch glycolate	Direct Compression (Solid dispersion)	64
Terbutaline Sulphate	Cross Povidone Crosscarmellose sodium	Direct Compression	65
Glipizide	Cross Povidone Cross carmellose sodium	Direct Compression	66
Metoclopramide Hydrochloride	Cross povidone Cross carmellose sodium	Direct Compression	67
Metoprolol Succinate	Cross carmellose sodium Sodium Starch glycolate (camphor and Ammonium Bicarbonate Sublimating Agent)	Sublimation	68
OndansetronHCl	Cross carmellose sodium Sodium Starch glycolate	Direct compression	69
LevocetrizineHCl	Citric Acid Sodium bicarbonate	Direct Compression	70
ReloxifeneHCl	Cross carmellose sodium Sodium Starch glycolate	Direct Compression	71
Zidovudine	B-cyclodextrin Crosspovidone	Direct Compression	72
Chlorpromazine HCl	Crodpovidone Ac-Di-Sol Sodium Starch glycolate	Direct Compression	73
Losartan Potassium	Crodpovidone Ac-Di-Sol Sodium Starch glycolate	Direct Compression	74
Pioglitazone	Crospovidone Crosscarmilose	Direct Compression	75
Lisinopril	Ac-Di-Sol Sodium Starch glycolate	Kneading Technique	76
Ibuprofen	kollidon CL(K) Explotab(E)	Wet Granulation	77
Felodipine	Crospovidone Sodium Starch glycolate	Direct Compression	78
Aceclofenace	Ac-Di-Sol Sodium Starch glycolate	Wet granulation	79
Disulfiram	Sodium Starch Glycolate (Glycolis-Type A)	Dry granulation, Slugging	80

SYNTHETIC SUPERDISINTEGRANTS

Synthetic Superdisintegrants are frequently used in tablet formulations to improve the rate and extent of tablet disintegration thereby increasing the rate of drug dissolution. The most widely used synthetic Superdisintegrants are illustrated below.

Advantage of synthetic Superdisintegrants

- Effective in lower concentrations than starch.
- More effective intragranularly.
- Less effect on compressibility and flow ability.[43]

1. Cross-linkedpolyvinylpyrrolidone: (crospovidone, PolyplasdoneXL, XL10)

Crospovidone quickly wicks saliva into the tablet to generate the volume expansion and hydrostatic pressures necessary to provide rapid disintegration in the mouth. Unlike other superdisintegrants, which rely principally on swelling for disintegration, Crospovidone superdisintegrants use a combination of swelling and wicking. When examined under a scanning electron microscope, crospovidone particles appear granular and highly porous. This unique, porous particle morphology facilitates wicking of liquid into the tablet and particles to generate rapid disintegration. Due to its high crosslink density, crospovidone swells rapidly in water without

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gelling. Other superdisintegrants have a lower crosslink density and, as a result, form gels when fully hydrated, particularly at the higher use levels in ODT formulations. Swells very little and returns to original size after compression but act by capillary action. [44-46]

2. Sodium Starch Glycolate: (Explotab, Primogel)

Sodium starch glycolate is widely used in oral pharmaceuticals as a disintegrant in capsule and tablet formulations. It is recommended to use in tablets prepared by either direct-compression or wet-granulation processes. The recommended concentration in a formulation is 2-8%, with the optimum concentration about 4% although in many cases 2% is sufficient. Disintegration occurs by rapid uptake of water followed by rapid and enormous swelling. The disintegrant efficiency of sodium starch glycolate is unimpaired in the presence of hydrophobic excipients, such as lubricants unlike many other disintegrants. Increasing the tablet compression pressure also appears to have no effect on disintegration time. The natural predried starches swell in water to the extent of 10-20 percent and the modified starches increase in volume by 200-300 percent in water. [47, 48]

3. Modified Cellulose (croscarmellose sodium, Ac-Di-Sol)

Croscarmellose sodium is described as a cross-linked polymer of carboxy methyl cellulose (CMC). This polymer is different in synthesis and structure as compare to Sodium starch glycolate. Most importantly, the degree of substitution sing Williamson‟s ether synthesis of croscarmellose sodium is higher than that of sodium starch glycolate, and the mechanism of cross linking is also different. The chemistry of SSG is different that of cross carmellose sodium as some of the carboxymethyl groups themselves are used to cross-link the cellulose chains. For example, the cross-linking in Primogel is phosphate ester rather than carboxyl ester links as compare to Cross carmellose sodium. [49, 50] Croscarmellose sodium at concentrations up to 5% w/w may be used as a tablet disintegrant, although normally 2% w/w is used in tablets prepared by direct compression and 3% w/w in tablets prepared by a wet-granulation process. [51]

4. Resins

Resins although insoluble, have great affinity for water and hence, act as disintegrant. Moreover, because of their smaller particle size the rate of swelling is high making them Superdisintegrants. Like conventional disintegrant, they don't lump but additionally impart strength to the tablets. The use of ion exchange resins into drug delivery systems have been encouraged because of their physico-chemical stability, inert nature, uniform size, spherical shape assisting coating and equilibrium driven reproducible drug release in ionic environment. Ion exchange resins are insoluble polymers that contain acidic or basic functional groups and have the ability to exchange counter-ions within aqueous solutions surrounding them. [52]

5. Low-substituted hydroxypropyl cellulose (L-HPC)

It is preferable in wet granulation and directly compressed tablets. Larger particle size and higher hydroxypropyl content show higher degree of swelling. It is useful to prevent capping. Now a day it is widely used as a super-disintegrate in fast dissolving tablets. Bi *et* aland Watanabe *et* al used microcrystalline cellulose and Low substituted hydroxyl propyl cellulose (L-HPC) as disintegrant to prepare rapidly disintegrating tablets. Ratio of the MCC and L- HPC was in the range of 8: 2 – 9: 1 resulted in tablets with shortest disintegration time. [53]

CONCLUSION

The study natural and synthetic superdisintergrants both have better effect on fast dissolving tablets. Natural Polymers increased the drug release rate from the tablet, decrease the dissolution and disintegration time, used as binder superdisintegrant, diluents. Easily available at low cost used in low concentration and as they are naturally extracted provide nutritional supplement. Disintegrants expand and dissolve when wet causing the tablet to break apart in the digestive, releasing the active ingredients for absorption. When the tablet is in contact with water, it rapidly breaks down into fragments. Starch is excipient used as a disintegrant. This article attempted to unveil the strategies that have been used by inventors for improving the performance of Superdisintegrants. Rapidly disintegrating dosage forms have been successfully commercialized by using various kinds of Superdisintegrants.

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