DESCRIPTION

A DISINTEGRATING TABLET

TECHNICAL FIELD

The present invention relates to a disintegrating tablet and the method for producing the same. In particular, the present invention relates to a disintegrating tablet which displays excellent disintegrating ability, strength and stability while containing a hygroscopic drug, and the method for producing the same.

BACKGROUND ART

A variety of drugs have been conventionally employed for formulations. Among these, hygroscopic drugs are known to occasionally cause deliquescence under high temperatures in summer seasons due to their hygroscopicities, causing a problem of handling.

Some disintegrating tablets are known to disintegrate easily inside body (e.g. in the oral cavity) upon administration. Although still not a consented definition of a "disintegrating tablet" have been made, generally, it is supposed to refer to a tablet which has a function to disintegrate rapidly in body after administration. In case with an orally disintegrating tablet to be administered orally, a typical disintegrating time is expected to be within 5-60 seconds in oral cavity without masticating. Disintegrating tablets, in particular, those administered orally, are very valuable tablets to takers,

especially, to those having inferior swallowing abilities such as infants and elderlies since these tablets can be taken without water.

A disintegrating agent having an increased porosity and/or containing a disintegrator has been invented so as to exert their disintegrating ability by quickly absorbing the moisture included in the body fluid (such as saliva when swallowing) when contacting with the body fluid upon administration (see Japanese Laid-open Patent Application (Kokai) No. 2004-2326, WO 95/20380 (booklet), Japanese Patent No. 2919771 and Examined Japanese Patent Application (Kokoku) No. 7-39340).

DISCLOSURE OF INVENTION

By increasing the porosity of a tablet, the strength of the tablet decreases, leading to a problem of handling where the tablet may be chipped through transportation or when being removed out of its storage container.

On the other hand, in case where a disintegrator is added to a tablet, it may require a specific way of handling such that the contact of the tablet with water must be prevented as much as possible until administration so as not to decrease the strength of the tablet by water absorption due to the high hygroscopicity of the disintegrator.

These problems become much more severe with a tablet containing a hygroscopic drug which tends to become soft and deteriorate by absorbing the moisture present in the atmosphere.

In view of such a circumstance, the problem to which the present invention tries to solve is to provide a disintegrating tablet which displays excellent disintegrating

ability, strength and drug stability while containing a hygroscopic drug.

The present inventors have intensively studied disintegrating tablets containing hygroscopic drugs to discover that a disintegrating tablet with excellent disintegrating ability, strength and drug stability can be obtained by combining erythritol, mannitol and a particular type of hydroxypropyl cellulose to a hygroscopic drug. The present invention has been completed based on this observation.

That is, the present invention relates to:

(1) a disintegrating tablet comprising a drug having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C, erythritol, mannitol, and hydroxypropyl cellulose having an equilibrium moisture content of 5-20% under a relative humidity of 75% at 25°C and having a viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C, wherein said disintegrating tablet contains said drug in an amount of 15-50% by mass of the total amount of said disintegrating tablet, and has porosity of 10-40%;

(2) the disintegrating tablet according to (1), wherein said drug has an equilibrium moisture content of 10-18% under a relative humidity of 75%;

(3) the disintegrating tablet according to (1) or (2), wherein said drug is acarbose;

(4) the disintegrating tablet according to any one of (1) – (3), being an orally disintegrating tablet;

(5) the disintegrating tablet according to any one of (1) – (4), containing no water-insoluble disintegrator;

(6) the disintegrating tablet according to (5), wherein said water-insoluble

disintegrator is selected from the group consisting of crospovidone, croscarmellose sodium, carmellose calcium, carmellose, carboxymethyl starch sodium, low substituted hydroxypropyl cellulose, starch, partly pregelatinized starch, cornstarch, hydroxypropyl starch, crystalline cellulose and gelatin;

(7) a method for producing a disintegrating tablet comprising steps of:

(i) mixing a drug having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C, erythritol and mannitol,

(ii) moistening the mixture obtained in (i) with a non-aqueous solution of hydroxypropyl cellulose having an equilibrium moisture content of 5-20% under a relative humidity of 75% at 25°C and having a viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C, and then drying the resultant, and

(iii) formulating the mixture obtained in (ii) to a disintegrating tablet,

wherein said disintegrating tablet contains said drug in an amount of 15-50% by mass of the total amount of said disintegrating tablet, and has porosity of 10-40%;

(8) a disintegrating tablet produced in accordance with the method recited in (7).

The disintegrating tablet according to the invention displays excellent disintegrating ability, strength and drug stability even when a hygroscopic drug is mixed therewith as will be demonstrated in Examples described later. The disintegrating tablet according to the invention solves the problems of handlings associated with conventional disintegrating tablets, therefore, are able to provide much more variety of application of disintegrating tablets.

BEST MODE FOR CARRYING OUT THE INVENTION

The present invention will now be explained in detail.

The drug used for the disintegrating tablet of the invention is one having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C.

The equilibrium moisture content of the drug is 10-20%, preferably, 10-18% under a relative humidity of 75% at 25°C. In general, a drug having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C is regarded as hygroscopic. The present invention can provide a disintegrating tablet which displays excellent disintegrating ability, strength and drug stability even when such a hygroscopic drug is mixed therewith

As used herein, an "equilibrium moisture content under a relative humidity of 75% at 25°C" refers to a value which is determined according to the following procedure:

The subject drug is dried at 105°C for 2 hours and approximately 5 g of which is allocated and the mass thereof (W1) is measured. Then the subject drug after measurement of the mass is left to stand for 72 hours in a desiccator in which the relative humidity is preliminarily adjusted to 75% at 25 °C with saturated saline, and then the mass of the subject drug (W2) is measured. The equilibrium moisture content is calculated according to the following formula based on W1 and W2.

Equilibrium moisture content (%) = (W2 – W1) / W1 x 100

The drug used for the present invention is not limited as long as it meets the above described condition of relative humidity and can be administered in the form of a tablet. The drug may have either systemic or topical effect.

The drug used for the invention may be in any form including solid, crystal, oil and solution. Examples of the drug used for the invention include ingredients selected from analeptics, antipyretic analgesic antiphlogistics, psychotropic agents, antianxiety agents, antidepressants, hypnosedatives, antispasmodics, agents affecting the central nervous system, brain metabolic stimulants, cerebral circulation activators, antiepileptic agent, sympathomimetic drugs, gastrointestinal drugs, antacids, antiulcer drugs, antitussive expectorants, antiemetics, respiratory stimulants, bronchodilating agents, drugs for allergy, agent for dental and oral use, antihistamine agents, cardiotonic agents, antiarrhythmics, diuretic agents, antihypertensive agents, vasoconstrictors, coronary vasodilators, telangiectatic agents, drugs for hyperlipemia, cholagogue, antibiotics, chemotherapeutic agents, antidiabetic agents, drugs for osteoporosis, antirheumatic agents, skeletal muscle relaxants, antispasmodics, hormonal agents, alkaloidal narcotics, sulfa drugs, antipodagric agents, anticoagulant agents, antineoplastic agents and the like.

Among these, antidiabetic agents are preferred. Examples of antidiabetic agents include alpha-glucosidase inhibitors. Examples of alpha-glucosidase inhibitors include acarbose, voglibose and the like, and amongst, acarbose is particularly preferable.

The drug used for the invention is a known compound and can be obtained easily from the market or produced by synthesis.

The drug can be used either alone or in combination of more than one.

Although the content of the drug in the disintegrating tablet of the invention may vary depending on the types of the drugs used, however, the typical content is 15-50% by mass, preferably, 15-30% by mass of the total mass of the disintegrating tablet. The content of 15-50% by mass can provide a disintegrating tablet having a disintegrating ability, strength and stability at the same time.

Erythritol used for the disintegrating tablet of the invention is not limited as long as it can be mixed with the disintegrating tablet.

Erythritol is a known compound and can be obtained easily from the market.

Although the content of erythritol in the disintegrating tablet of the invention may vary depending on the properties of the drugs used such as the compactability, however, the typical content is 40-84% by mass, preferably, 60-84% by mass of the total mass of the disintegrating tablet. The content of 40-84% by mass can provide a disintegrating tablet having a disintegrating ability, strength and drug stability at the same time.

Mannitol used for the disintegrating tablet of the invention is not limited as long as it can be mixed with the disintegrating tablet.

Mannitol is a known compound and can be obtained easily from the market.

Although the content of mannitol in the disintegrating tablet of the invention may vary depending on the properties of the drugs used such as the compactability, however, the typical content is 0.5-44.5% by mass, preferably, 1-20% by mass of the total mass of the disintegrating tablet. The content of 0.5-44.5% by mass can provide

a disintegrating tablet having a disintegrating ability, strength and drug stability at the same time.

The hydroxypropyl cellulose used for the disintegrating tablet of the invention is one having an equilibrium moisture content of 5-20% under a relative humidity of 75% at 25°C and having a viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C.

The equilibrium moisture content of the hydroxypropyl cellulose is 5-20%, preferably, 5-15% under a relative humidity of 75% at 25°C. An equilibrium moisture content of 5-20% can provide a disintegrating tablet having a disintegrating ability, strength and drug stability at the same time even when a hygroscopic drug is mixed therewith.

As used herein, an "equilibrium moisture content under a relative humidity of 75% at 25°C" refers to a value which is determined according to the same process as described above for the equilibrium moisture content of the drug.

The hydroxypropyl cellulose has a viscosity of 100-2000 cps, preferably, 100-500 cps when being in the form of an aqueous solution of 20% by mass at 37°C. A viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C can provide a disintegrating tablet having a disintegrating ability, strength and drug stability at the same time even when a hygroscopic drug is mixed therewith.

As used herein, a "viscosity of the hydroxypropyl cellulose in the form of an aqueous solution of 20% by mass at 37°C" refers to a value which is determined according to "Viscosity Determination, Method II, Viscosity measurement by rotational

viscometer" described in General Tests, Processes and Apparatus, The Japanese Pharmacopeia, 15th Edition.

The hydroxypropyl cellulose used for the invention is not limited as long as it meets the conditions of the equilibrium moisture content and viscosity as described above and can be administered in a form of a tablet.

Specific examples of hydroxypropyl cellulose having the above described properties include commercially available products such as HPC-SSL from Nippon Soda Co., Ltd. (equilibrium moisture content of 10% under a relative humidity of 75% at 25°C: viscosity of 200 cps when being in the form of an aqueous solution of 20% by mass at 37°C).

The above described hydroxypropyl cellulose is a known compound and can be obtained easily from the market or produced by synthesis.

The hydroxypropyl cellulose can be used either alone or in combination of more than one.

Although the content of hydroxypropyl cellulose in the disintegrating tablet of the invention may vary depending on the properties of the drugs used such as the compactability, the typical content is 0.5-5% by mass, preferably, 0.8-2% by mass of the total mass of the disintegrating tablet. The content of 0.5-5% by mass can provide a disintegrating tablet having a disintegrating ability, strength and drug stability at the same time.

The disintegrating tablet of the present invention preferably contains no water-insoluble disintegrator.

The water-insolubility for a water-insoluble disintegrator is defined as that an amount of purified water not less than 1000 mL is required for dissolving 1 g of the water-insoluble disintegrator in purified water at 20°C under vigorous shaking for 30 min according to a measurement method described in General Notes, The Japanese Pharmacopeia, 15th Edition.

The disintegrating ability for a water-insoluble disintegrator is defined as that a prepared formulation disintegrates upon testing under a predetermined condition according to "Disintegration Test" described in General Tests, Processes and Apparatus, The Japanese Pharmacopeia, 15th Edition.

Specific examples of the water-insoluble disintegrator include crospovidone (1-ethenyl-2-pyrrolidinone homopolymers), croscarmellose sodium, carmellose calcium, carmellose, carboxymethyl starch sodium, low substituted hydroxypropyl cellulose (such as those having a hydroxypropoxyl group content of 5-16% by weight), starch, partly pregelatinized starch, cornstarch, hydroxypropyl starch, crystalline cellulose and gelatin.

By exclusion of the above described water-insoluble disintegrator in the disintegrating tablet, the denaturation of hygroscopic drugs can be reduced and the strength of the tablet can be enhanced more since these integrators exhibit disintegrating effect by absorbing water.

The disintegrating tablet of the invention has porosity of 10-40%, preferably, 20-40%. Porosity of 10-40% allows a disintegrating tablet to exhibit an excellent disintegrating ability, when contacting with body fluid upon administration (such as

saliva upon swallowing), by rapidly absorbing water contained in the body fluid. The porosity can be calculated from the following formula.

Porosity (%) = (V – W / M) / V x 100

wherein V represents the volume of the disintegrating tablet (cm^3), W represents the mass of the disintegrating tablet (g), and M represents the density of the disintegrating tablet (g/cm^3).

The density of a disintegrating tablet (M) is determined according to the following procedure:

The disintegrating tablet is transferred into a mortar and milled until it becomes powdery to prepare a sample. Approximately 5 g of the powder sample is allocated and the mass thereof (W2) is measured. Then the volume of the powder sample (V2) after measuring the mass is measured using a pycnometer (Helium Pycnometer 1302 from SHIMADZU CORPORATION). The density (M) is calculated according to the following formula based on W2 and V2 as measured above.

Density of Disintegrating Tablet (g/cm^3) = W2 / V2

If necessary, additives such as lubricants and colorants may be added to the disintegrating tablet of the present invention.

Examples of the additives include the following substances:

Lubricants

Sodium stearyl fumarate, magnesium stearate, esters of sucrose and fatty acids.

Although the content of the lubricant in the disintegrating tablet of the invention may vary depending on the properties of the drugs used such as the compactability, the

typical content is 0.001-10% by mass of the total mass of the disintegrating tablet.

Colorants

Yellow ferric oxide, red ferric oxide, food dyes and food lake dyes.

The disintegrating tablet of the invention can be produced by a method comprising following steps of (1)-(3):

(1) mixing a drug having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C, erythritol and mannitol;

(2) moistening the mixture obtained in (1) with a non-aqueous solution of hydroxypropyl cellulose having an equilibrium moisture content of 5-20% under a relative humidity of 75% at 25°C and having a viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C, and then drying the resultant; and

(3) compaction of the mixture obtained in (2) to a disintegrating tablet.

The above steps (1) and (2) can be performed with a granulator conventionally used in the pharmaceutical field such as fluidized-bed granulator and high sheer mixer.

The non-aqueous solution of hydroxypropyl cellulose used in step (2) can be obtained by dissolving hydroxypropyl cellulose in a non-aqueous solvent. Examples of such non-aqueous solvent include methanol, ethanol and the like. Although hydroxypropyl cellulose is soluble in aqueous solvents, a non-aqueous solvent is used in the present invention in order to avoid denaturation and decrease of the strength of the disintegrating tablet, which are caused by hygroscopic drugs which absorb water contained in aqueous solvents. Preferably, the concentration of hydroxypropyl

cellulose in the non-aqueous solution is 5-20%. Drying of the non-aqueous solvent can be performed at a temperature of 30-90°C, preferably, 60 °C.

In step (2), the surface of each component (the drug, erythritol and mannitol) included in the mixture obtained in (1) can be moistened with the non-aqueous solution of hydroxypropyl cellulose and then dried to produce a mixture of respective components (the drug, erythritol and mannitol) being coated with hydroxypropyl cellulose.

The thus obtained mixture may be subjected to particle size adjustment using a particle size selector to adjust the particle sizes to ,for example, 0.5-5 mm, preferably, 0.8-2 mm before proceeding to the step (3). Further, a lubricant may be added to the mixture before proceeding to the step (3).

The step (3) can be performed with a tableting machine conventionally used in the pharmaceutical field such as single punch press and rotary tableting machines. In order to achieve the above described porosity of the disintegrating tablet (10-40%), compaction of the mixture obtained in (2) to a disintegrating tablet is performed under a minimum pressure such as 0.1-10 kN/cm^2, preferably, 0.3-5 kN/cm^2. Further, the processing may be performed by a common tableting method or an external lubrication tableting method. Examples of apparatuses used for external lubrication tableting methods include ELSP1 from Kikusui Seisakusho Ltd..

Optionally, the tablet obtained in the step (3) may be subjected to humidification and drying processes to induce melting and solidification of hydroxypropyl cellulose coating each component (the drug, erythritol and mannitol), further enhancing the

strength of the disintegrating tablet. However, the humidification process should be performed under a condition where no denaturation of a hygroscopic drug by water absorption and/or no decrease in the strength of the disintegrating tablet by water absorption occur, for example, a condition where the tablet is incubated in a humidification vessel under a relative humidity of 90% at 50°C for 2 minutes. Drying can be performed by a conventional drying method in the pharmaceutical field such as vacuum drying and fluidized-bed drying.

The thickness of the disintegrating tablet of the invention may vary depending on the type of the subject to be administered, however, the typical thickness for oral administration is 1-8 mm, preferably, 3-6 mm. With a tablet having a thickness of 1-8 mm, foreign-body sensation upon administration can be reduced.

The shape of the disintegrating tablet of the invention may vary depending on the type of the subject to be administered, however, is typically rectangle, round, oval and the like. Round and oval shapes are preferable because with these shapes foreign-body sensation upon administration may be reduced.

The disintegrating tablet of the invention is generally applied to oral cavity, however, it can also be applied to sites other than oral cavity such as intestinal mucosa, conjunctival sac, nose, throat, vagina and the like.

In addition, the disintegrating tablet of the invention may be used to achieve either systemic or topical effect, depending on the nature of the drug contained therein.

The present invention will now be explained in more detail by way of Examples and Comparative Examples. However, these examples are not intended to limit the

scope of the present invention.

EXAMPLE

In a high sheer mixer (VG-1 from Powrex Corporation), 75 g of acarbose (the equilibrium moisture content of 17% under a relative humidity of 75% at 25°C as measured by the above described measurement method (the same as in Comparative Examples)) (from Bayer Health Care), 283.5 g of erythritol (from Nikkenkasei Corporation) and 9 g of mannitol (from Towa-Kasei Co., Ltd.) were mixed. Then the surface of each component included in the resulting mixture was moistened with a solution containing 3.75 g of hydroxypropyl cellulose (product name: HPC-SSL, from Nippon Soda Co., Ltd.) (solvent; ethanol: hydroxypropyl cellulose concentration; 10%) having an equilibrium moisture content of 10% under a relative humidity of 75% at 25°C (measured by the above described method (the same as in Comparative Examples)) and a viscosity of 200 cps when being in the form of an aqueous solution of 20% by mass at 37°C (measured by the above described method (the same as in Comparative Examples)). The resulting mixture was air-dried at 60 °C and the particle size was adjusted to 1 mm using a 16 mesh screen after which 3.75 g of sodium stearyl fumarate (from Kimura Sangyo Co., Ltd.) as a lubricant was added thereto and mixed together. The resulting mixture was compressed (tableting pressure: 1 kN/cm^2) to a tablet having a mass of 250 mg, thickness of 4.2 mm and round shape using a tableting machine, CP-12 HUK (punch diameter: 9 mm, from Kikusui Seisakusho Ltd.). The resulting tablets were left to stand in a humidification vessel under the relative humidity

of 90% at 50°C for two minutes and then air-dried at 60°C. The resulting tablet contained no water-insoluble disintegrator. The porosity of the tablet was 23% as calculated in accordance with the above described formula (the same as in Comparative Examples).

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COMPARATIVE EXAMPLE 1

A tablet was produced by the same procedure as described in Example except that, as hydroxypropyl cellulose, 3.75 g of hydroxypropyl cellulose (from from Nippon Soda Co., Ltd.) having an equilibrium moisture content of 9% under a relative humidity 10 of 75% at 25°C and a viscosity of 9000 cps when being in the form of an aqueous solution of 20% by mass at 37°C was used. The resulting tablet had porosity of 22%.

COMPARATIVE EXAMPLE 2

A tablet was produced by the same procedure as described in Example except 15 that 3.75 g of maltose (from Hayashibara Shoji, INC.) having an equilibrium moisture content of 7% under a relative humidity of 75% at 25°C and a viscosity of 2 cps when being in the form of an aqueous solution of 20% by mass at 37°C was used instead of hydroxypropyl cellulose. The resulting tablet had porosity of 21%.

20 For each of the tablets produced in Example and Comparative Examples, the hardness (as an index of the strength of the disintegrating tablet) and the oral disintegration time (as an index of the disintegrating ability of the disintegrating tablet)

were measured under two conditions: (1) a condition immediately after being produced and (2) a condition assumed for a tablet being left after opening (for three hours under a relative humidity of 75% at 25°C). The testing methods were as follows:

Hardness (N)

The hardness of the tablet was measured using a Kiya hardness meter (from KIYA Corporation) under a relative humidity of 45-55% at 25°C. The measurement was repeated for 10 tablets and the average value was used in terms of the hardness (N).

Oral Disintegration Time (second)

A tablet was placed between the tongue and upper jaw of a subject person and the time until the shape of the tablet becomes unrecognizable without mastication was measured. The measurement was repeated for three tablets and the average value was used in terms of the oral disintegration time (second).

The results of the above measurements are shown in Table 1.

Table 1

		Example	Comparative Example 1	Comparative Example 2
Immediately after being produced	Hardness (N)	30	32	33
	Oral disintegration time (sec)	26	44	50
Being left after opening	Hardness (N)	37	38	Unmeasurable due to softening
	Oral disintegration time (sec)	28	44	22

In case where the acceptability criteria of strength and disintegrating ability for disintegrating tablet is defined with hardness not less than 20 N and oral disintegration time not more than 30 seconds, the results would be presented as those shown in Table 2.

Table 2

		Example	Comparative Example 1	Comparative Example 2
Immediately after being produced	Hardness (N)	○	○	○
	Oral disintegration time (sec)	○	×	×
Being left after opening	Hardness (N)	○	○	×
	Oral disintegration time (sec)	○	×	○

○ : acceptable

× : not acceptable

The stability of the hygroscopic drug was assayed for the tablet produced as described in Example by measuring acarbose content at four time points: (1) immediately after being produced, (2) after one month storage, (3) after three month storage and (4) after six month storage. The packaging material was PTP + aluminium. The tablet was stored under a relative humidity of 75% at 40 °C. The measurement of the acarbose content was performed according to "Liquid Chromatography" described in General Tests, Processes and Apparatus, The Japanese Pharmacopeia, 15th Edition. The results are shown in Table 3 as below. The each value shown in Table 3 is an acarbose content (the average value obtained from triplicate measurements using 20 tablets for each) of one tablet (250 mg).

Table 3

Items	Initial	After 1 month storage	After 3 month storage	After 6 month storage
Acarbose Content	50.5 mg	50.7 mg	49.8 mg	49.2 mg

INDUSTRIAL APPLICABILITY

The disintegrating tablet of the invention can be utilized in terms of a medical drug.

CLAIMS

1. A disintegrating tablet comprising:

a drug having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C;

erythritol;

mannitol; and

hydroxypropyl cellulose having an equilibrium moisture content of 5-20% under a relative humidity of 75% at 25°C and having a viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C;

wherein said disintegrating tablet contains said drug in an amount of 15-50% by mass of the total amount of said disintegrating tablet and has porosity of 10-40%.

2. The disintegrating tablet according to claim 1, wherein said drug has an equilibrium moisture content of 10-18% under a relative humidity of 75% .

3. The disintegrating tablet according to claim 1 or 2, wherein said drug is acarbose.

4. The disintegrating tablet according to any one of claims 1 to 3, being an orally disintegrating tablet.

5. The disintegrating tablet according to any one of claims 1 to 4, containing no water-insoluble disintegrator.

6. The disintegrating tablet according to claim 5, wherein said water-insoluble disintegrator is selected from the group consisting of crospovidone, croscarmellose sodium, carmellose calcium, carmellose, carboxymethyl starch sodium, low substituted hydroxypropyl cellulose, starch, partly pregelatinized starch, cornstarch, hydroxypropyl starch, crystalline cellulose and gelatin.

7. A method for producing a disintegrating tablet comprising steps of:

(1) mixing a drug having an equilibrium moisture content of 10-20% under a relative humidity of 75% at 25°C, erythritol and mannitol;

(2) moistening the mixture obtained in (1) with a non-aqueous solution of hydroxypropyl cellulose having an equilibrium moisture content of 5-20% under a relative humidity of 75% at 25°C and having a viscosity of 100-2000 cps when being in the form of an aqueous solution of 20% by mass at 37°C, and then drying the resultant; and

(3) formulating the mixture obtained in (2) to a disintegrating tablet,

wherein said disintegrating tablet contains said drug in an amount of 15-50% by mass of the total amount of said disintegrating tablet and has porosity of 10-40%.

8. A disintegrating tablet produced in accordance with the method recited in claim 7.