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(54) Titre : **MEDICAMENT ANTICANCEREUX**

(54) Title: **ANTICANCER DRUG**

(57) **Abrégé/Abstract:**

An anticancer drug of which the main ingredient is bamboo powder. In particular, the bamboo powder is of lower no-branch culm portions of three-year-old and older bamboos, or is of bamboos cut down during the period of three months before the season of bamboo shoots; and pumpkin seed powder, garlic powder, powdered cheese, wheat flour, and water are added to the bamboo powder to make a mixture thereof, and the mixture is allowed to mature.



ABSTRACT OF THE DISCLOSURE

An anticancer drug of which the main ingredient is bamboo powder. In particular, the bamboo powder is of lower no-branch culm portions of three-year-old and older bamboos, or is of bamboos cut down during the period of three months before the season of bamboo shoots; and pumpkin seed powder, garlic powder, powdered cheese, wheat flour, and water are added to the bamboo powder to make a mixture thereof, and the mixture is allowed to mature.

ANTICANCER DRUGBACKGROUND OF THE INVENTION

The present invention relates to an anticancer drug
5 effective in preventing colon and rectum cancer (cancer of the
large intestine) of a high incidence, reducing the cholesterol
value in plasma, and lowering the blood-sugar levels of
diabetics.

Cancer has been taking a heavy toll of lives every year,
10 and has recently become a representative of fatal diseases. On
the other hand, research and development in medicines for, and
treatments of, cancer are progressing rapidly. However, no fully
effective medicine has been developed, and no fully effective
treatment has been established. Accordingly, the prevention of
15 cancer is most important.

One of the cancer-preventing measures is to remove such
factors in our living environment as may cause cancer. Among such
factors, food is the most fundamental factor. Food additives may
contain cancer-inducing agents. Carcinogens may be produced
20 while food is stored or cooked. It is known that the quality of
food and nutrition have considerable relevance to the
canceration.

For instance, vitamin A contained in vegetables is
supposed to be effective for cancer prevention, and Vitamin C
25 lowers the level of the production of nitrosamine in our bodies.
Vegetable fiber improves bowel motions and reduces the incidence
of colon and rectum cancer. (P.894, Vol. 3, Heibonsha's
Encyclopedia)

It is important, therefore, to avoid foods which may be
30 cancer-causing factors or contain carcinogens and to have foods
which contain large quantities of vitamins and vegetable fiber.

As mentioned above, no fully effective medicine for cancer

is available, and cancer processes have not completely been elucidated yet. Accordingly, it has not yet been elucidated which, in concrete terms, of such foods as containing large quantities of vitamins and fiber can
5 prevent cancer effectively.

On the other hand, even if there is available a drug which prevents cancer quite effectively, it would tend to have side effects due to its very nature that it acts strongly on human bodies.

10 In accordance with the above, an anticancer drug for reduction of the incidence of colon and rectum cancer effectively without side effect is described.

SUMMARY OF THE INVENTION

15 According to one aspect of the present invention, there is provided a pharmaceutical composition for preventing or treating cancer, comprising as active ingredient powdered bamboo.

In one aspect, the active ingredient preferably
20 comprises the powder of the lower no-branch culm portions of three-year-old and older bamboos. Such a composition contains large quantities of bamboo fiber, lignin, etc. and may be used to reduce the incidence of colon and rectum cancer effectively without side effect.

25 The bamboos are preferably cut down during the period of three months before the season of bamboo shoots. A composition made from bamboos cut during this period contains large quantities of bamboo fiber, lignin, etc. and

such composition may be used to reduce the incidence of colon and rectum cancer effectively without side effect.

The active ingredient may comprise a matured mixture of powdered bamboo, pumpkin seed powder, wheat flour,
5 garlic powder, powdered cheese, and water, which mixture may be formed into a shape suitable for taking it by mouth and may be used to reduce the incidence of colon and rectum cancer effectively without side effect.

In one aspect, the invention provides use of the
10 composition as described herein for the prevention or treatment of colon or rectum cancer, or for the manufacture of a medicament for the prevention or treatment of colon or rectum cancer.

In another aspect, the invention provides use of the
15 composition as described herein for the reduction of cholesterol in plasma or for lowering blood-sugar levels, or for the manufacture of a medicament for the reduction of cholesterol in plasma or for lowering blood-sugar levels.

In a further aspect, the invention provides a
20 commercial package containing the composition as described herein, together with instructions for its use, for the prevention or treatment of colon or rectum cancer, or for the reduction of cholesterol in plasma or for lowering blood-sugar levels.

25

BRIEF DESCRIPTION OF THE DRAWING

The features and advantages of the present invention will become more clearly appreciated from the following

description in conjunction with the accompanying drawing,
in which:

Fig. 1 is a flow sheet showing the process of one
embodiment of anticancer drug of the present invention.

5

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawing, a preferred embodiment
of the present invention will now be described.

In Fig. 1, the letter A represents an anticancer drug
10 embodying the present invention. The ingredients of the
anticancer drug A consists of a main ingredient of bamboos
1S and accessory ingredients. First, the main ingredient
of bamboos 1S will be described. Any kinds of bamboos can
be used as bamboos 1S, for any kinds of bamboos contain
15 fiber, lignin, etc. For example, black bamboo
(Phyllostachys nigra), common Japanese bamboo
(Phyllostachys bambusoides), mosochiku (a species of

thick-stemmed bamboo, or *Phyllostachys pubescens*), and so on can be used as bamboos 1S.

Any portions of a bamboo can be used as bamboos 1S, the main ingredient of the anticancer drug A. In particular, the lower
 5 no-branch culm portion of a three-year-old or older bamboo is suitable, for this portion contains more fiber, lignin, etc. than the other portion. Although we usually don't eat this portion of a bamboo, the inventor of the present invention dared to use this portion as the main ingredient. The effect of doing so will
 10 be described later.

Bamboos cut down in any seasons can be used as bamboos 1S, the main ingredient of the anticancer drug A. In particular, bamboos cut down during the period of three months before the season of bamboo shoots are most suitable as bamboos 1S, for
 15 bamboos accumulate nourishment in the period so that they can nourish bamboo shoots in their season. Therefore, bamboos cut down in the period contain more fiber, lignin, etc. than those cut down in the other period in a year. Its effect will be described later.

20 Bamboos 1S are reduced by a grinder to fine powder 1 of 0.1-20 micrometers or so.

The accessory ingredients of the anticancer drug A comprise the following materials.

Pumpkin seeds 2S are seeds taken from mature pumpkins
 25 and dried. These pumpkin seeds 2S are reduced by a grinder to fine powder 2 of 0.1-20 micrometers or so.

Dried cloves of garlic 3S are reduced by a grinder to fine powder 3 of 0.1-20 micrometers or so.

Powdered cheese 4 can be of any cheese without
 30 particular limitation.

Wheat flour 5 is to form the anticancer drug A into a granular, or bar-like, or some other shape, and any wheat flour

without particular limitation can be used as wheat flour 5. Powder of glutinous rice may be used instead of wheat flour 5.

Any water without particular limitation can be used as water 6.

5 Moreover, all the accessory ingredients of pumpkin seed powder 2, garlic powder 3, powdered cheese 4, wheat flour 5, and water 6 can be dispensed with. However, as bamboo powder 1 alone is not suitable for taking it by mouth, it is preferable to add such accessory ingredients to the main one and mix them.

10 A process for preparing the anticancer drug A will now be described in sequence.

 First, bamboo powder 1, pumpkin seed powder 2, garlic powder 3, powdered cheese 4, wheat flour 5, and water 6 are mixed in a mixing ratio described later (10P). The mixture is steamed
15 for about two hours and allowed to mature for 48 hours at normal temperature (20P). Then, the compound is formed into a desired shape such as a granular, or bar-like, or any other shape (30P). Air of normal temperature is blown into the shaped pieces to dry them (40P), and they are further allowed to mature for 48 hours
20 (50P) to become anticancer drug A of this embodiment.

 The mixing weight ratio of the main ingredient of bamboo powder 1 and the accessory ingredients of pumpkin seed powder 2, garlic powder 3, powdered cheese 4, wheat flour 5, and water 6 will now be described.

25 Table 1 shows a mixing weight ratio of the main ingredient of bamboo powder 1 and the accessory ingredients of pumpkin seed powder 2, garlic powder 3, powdered cheese 4, wheat flour 5, and water 6. The higher the mixing weight ratio of the main ingredient of bamboo powder 1, the higher the medicinal
30 effect of the anticancer drug A.

Table 1 Mixing Weight Ratio

	Bamboo powder 1:	80%
	Pumpkin seed powder 2:	5%
	Garlic powder 3	5%
	Powdered cheese 4	5%
5	Wheat flour 5	5%
	Water 6:	Appropriate quantity

To make it easy for us to take the anticancer drug A of this embodiment by mouth, it may be formed into tablets, grains, bars, and any other shapes without particular limitation.

The medicinal effect of the anticancer drug A of this embodiment will now be described.

The appropriate quantity for an adult to take a day is about 25-50 g. This quantity is derived from experimental results described later and equivalent to 5-10% of the daily meal quantity of an ordinary adult. The quantity may be changed appropriately depending on each person's condition. It is appropriate to divide such a daily quantity into three to five doses.

The anticancer drug A of this embodiment improves the function of the digestive organs, which increases the quantity of excrement and prevents carcinogens from staying in the digestive organs. Thus, the anticancer drug A of this embodiment has a high effect in preventing cancer. Besides, the anticancer drug A of this embodiment has no side effects because its main ingredient, bamboos 1S, is natural bamboos.

Moreover, anticancer drug A prepared by using the lower no-branch culm portions of three-year-old and older bamboos as the main ingredient, bamboos 1S, has a higher effect, because three-year-old and older bamboos contain more fiber, lignin, etc. than younger bamboos do, and the lower no-branch culm portions contain more of the same than the upper branch-bearing culm

portions do.

Furthermore, anticancer drug A prepared from bamboos cut down during the period of three months before the season of bamboo shoots has higher effect because the bamboos contain more
5 fiber, lignin, etc. than bamboos cut down in the other months do.

[Experiment]

An experiment with the anticancer drug A of this embodiment will now be described.

10 To verify the medicinal effect of the fiber of the bamboos 1S to reduce the incidence of colon and rectum cancer to be induced by dimethylhydrazine (DMH), a carcinogen, an experiment was carried out as follows.

(1) Experimental Method

15 Male Wistar rats of about 80 g were fed with solid food on the market to acclimatize them to the feeding environment. Then, they were divided into four groups, each consisting of 15. The four groups were fed with different diets shown below and observed for 20 weeks.

20 In the first 10 weeks, 0.03 g/kg DMH dissolved in corn oil was administered to the rats in Groups 2, 3, and 4 through a stomach tube every week. In the eleventh week, the moving speed of food through the digestive tract (from mouth to anus) and the quantity of excrement of each rat were measured. In the twentieth
25 week, they were anesthetized with ether and their large intestines were removed. The large intestines were washed with cold physiological saline to examine them for cancer cells.

Table 2 Experimental Feed (g/kg)

	Group 1	Group 2	Group 3	Group 4
DMH	—	0.03	0.03	0.03
Bamboo fiber	—	—	50	100

Casein	200	200	200	200
Corn oil	50	50	50	50
Minerals	40	40	40	40
Vitamins	10	10	10	10
Sucrose	700	700	650	600

The bamboos 1S were *mosochiku* (a species of thick-stemmed bamboo or *Phyllostachys pubescens*). The fiber of the bamboos 1S contained 56% cellulose and 24% lignin. Table 3 shows
5 the constituent parts contained in 100 g of the bamboo 1S.

Table 3 Constituent Parts in 100 g of *Mosochiku*

Constituent Parts	Quantity
Water	4.98 g
Protein	1.13 g
Lipid	0.22 g
Sugar	48.23 g
Fiber	44.39 g
Ash	1.05 g
Calcium	28.00 mg
Iron	5.40 mg
Phosphorus	34.00 mg
Tyrosine	0.40 mg

(2) Experimental Results

10

Table 4 shows the experimental results.

Table 4 Experimental Results

Moving Speed of Food through Digestive Tract	Quantity of Excrement (wet weight, g/24	Incidence of Colon and Rectum Cancer
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	(hours)	hrs./rat)	(%)
Group 1	16.9 $\pm$ 1.5	0.6 $\pm$ 0.2	0 (0/15)
Group 2	17.2 $\pm$ 1.2	0.6 $\pm$ 0.3	100 (15/15)
Group 3	12.5 $\pm$ 0.9	2.5 $\pm$ 0.3	60 (9/15)
Group 4	10.2 $\pm$ 0.6	3.2 $\pm$ 0.4	47 (7/15)

DMH was not administered to the rats of Group 1. Accordingly, their incident of DMH-induced cancer was 0%.

DMH was administered to the rats of Group 2, but no
5 fiber of the bamboos 1S was fed to them. Their incident of DMH-induced cancer was 100%.

DMH was administered and the fiber of the bamboos 1S was fed to the rats of Groups 3 and 4. As the result of it, the incidences of DMH-induced cancer of Groups 3 and 4 were reduced
10 to 60% and 47%, respectively, demonstrating the effect of the fiber of the bamboos 1S.

Besides, the rats of Group 4 were fed with two times the quantity of bamboo fiber fed to those of Group 3. Thus, it was demonstrated that the fiber contained in the bamboos 1S
15 reduces the incident of DMH-induced colon and rectum cancer.

The fiber contained in the bamboos 1S increased the moving speed of food in the digestive tract and the quantity of excrement. The increased excrement can be considered to have reduced the incidence of DMH-induced colon and rectum cancer.
20 Namely, the fiber contained in the bamboos 1S clearly reduced the incident of DMH-induced colon and rectum cancer.

As shown in Table 4, the fiber contained in the bamboos 1S increased the quantity of excrement and reduced the necessary time for food to pass through the large intestine in particular.
25 As the result of it, the dimethylhydrazine (DMH) was diluted to such an concentration as did not cause cancer and, at the same time, its acting time in the large intestine was reduced, which

resulted in the reduced incidences of DMH-induced colon and rectum cancer.

On the other hand, lignin is known to activate the immune system. The fiber of the bamboos 1S contained a large
5 quantity of lignin, which can be considered to have contributed to the reduction of incidence of colon and rectum cancer.

In these days, some people are suffering from anorexia, worrying too much about obesity with food around which tends to be rich in fat and protein. The inventor of the present invention
10 has successfully reduced his weight from 66.5 kg to 62.5 kg by having ordinary meals and taking a quantity of fiber of the bamboos 1S equivalent to 5% of his daily meal quantity for 60 days.

The inventor of the present invention has been
15 suffering from diabetes. His blood-sugar level used to be 220-250 two hours after having a meal. It has been reduced to 160-180 by having a quantity of fiber of the bamboos 1S equivalent to 5% of daily meal quantity for 60 days. In addition, his skin trouble from athlete's foot over a long time period changed from
20 wet type to dry type and has completely been cured.

The fiber of the bamboos 1S demonstrated its effect to prevent obesity, decrease the cholesterol value in plasma, prevent colon and rectum cancer, and also help the treatment of skin troubles.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A pharmaceutical composition for preventing or treating cancer, comprising as active ingredient powdered bamboo.
2. The composition according to claim 1, wherein the active ingredient comprises the powder of the lower unbranched culm portions of three-year-old and older bamboo.
3. The composition according to claim 1 or 2, wherein the bamboo has been cut during the three month period prior to the appearance of shoots.
4. The composition according to claim 1, 2, or 3, wherein the active ingredient comprises a matured mixture of powdered bamboo, pumpkin seed powder, wheat flour, garlic powder, powdered cheese, and water.
5. A composition according to any one of claims 1 to 4, in a form suitable for oral administration.
6. Use of the composition according to any one of claims 1 to 5, for the prevention or treatment of colon or rectum cancer.

7. Use of the composition according to any one of claims 1 to 5, for the reduction of cholesterol in plasma or for lowering blood-sugar levels.

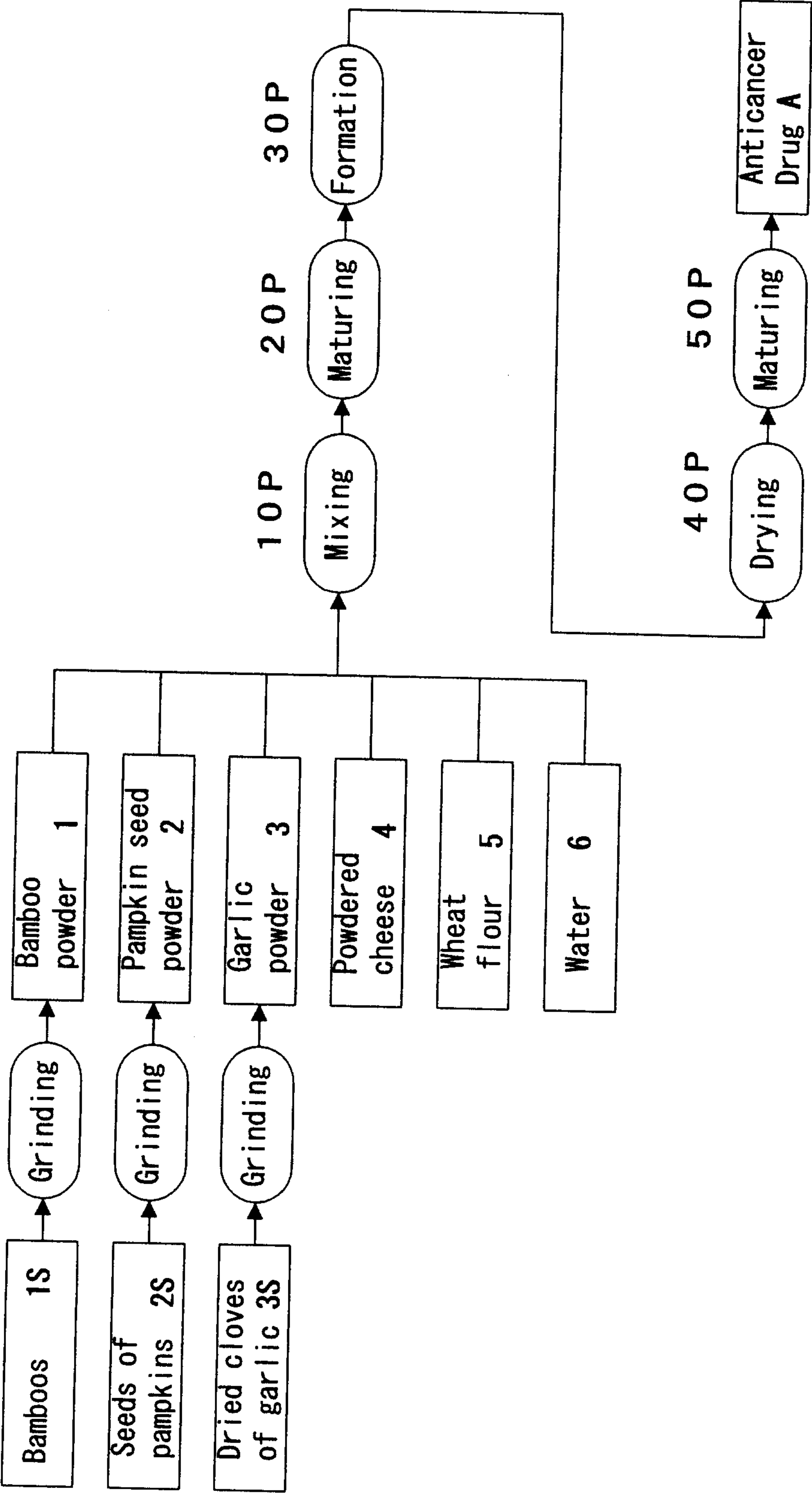
8. Use of the composition according to any one of claims 1 to 5, for the manufacture of a medicament for the prevention or treatment of colon or rectum cancer.

9. Use of the composition according to any one of claims 1 to 5, for the manufacture of a medicament for the reduction of cholesterol in plasma or for lowering blood-sugar levels.

10. A commercial package containing the composition according to any one of claims 1 to 5, together with instructions for its use, for the prevention or treatment of colon or rectum cancer.

11. A commercial package containing the composition according to any one of claims 1 to 5, together with instructions for its use, for the reduction of cholesterol in plasma or for lowering blood-sugar levels.

[Fig. 1]



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