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(54) **Treatment of flax.**

(57) A method of treating flax straw comprising infusing sulphur dioxide gas through sealed batches of moist flax. The sulphur dioxide reacts with the moisture producing acidic conditions which significantly reduce mould and bacterial deterioration of the flax and also improves the processing characteristics of the flax.

This invention relates to the treatment of flax straw.

The traditional dew retting of flax can only be practised in areas where the climate is suitable. Alternative retting methods are now being developed, including the use of enzymes. These alternative retting methods work successfully in a variety of climates. However, when flax is produced in damp climates, there is often little opportunity for field drying prior to storage and significant mould or bacterial deterioration often takes place during storage as a result of this.

The present invention seeks to provide a solution to this problem.

According to the present invention there is provided a method of treatment of flax straw comprising the infusion of a gas through moist flax straw so as to provide conditions which inhibit the activity of any micro-organism which causes deterioration of the flax.

This treatment improves the processing characteristics of the straw; that is it aids separation of the flax fibres from the waste material.

The gas is preferably sulphur dioxide. The gas preferably provides acidic conditions. Preferably 2% or less of sulphur dioxide by weight of the dry flax straw is used. The reaction of the sulphur dioxide with the moisture provides acidic conditions.

The flax may be fresh or partly dried but remains moist, having a preferred moisture content in the range from 30 to 70% by weight of the dry flax. The flax may be deseeded.

The treatment of the flax preferably takes place in sealed containers such as in containers made of plastic material, for example polythene bags.

In a preferred embodiment of the invention, sulphur dioxide is released into sealed batches of moist flax, which may be in the forms of bales or beets. The sulphur dioxide diffuses readily through the flax combining with the moisture present to form a weak solution of sulphurous acid, thus reducing the pH of the flax.

The action of the sulphur dioxide inhibits the activity of micro-organisms likely to produce cellulytic and other enzymes which can damage and weaken the flax fibres. However, partial retting of the flax also occurs probably through the weakening of bonds between fibre bundles by direct acidification.

In order that the invention may be more readily understood, two specific embodiments thereof will now be described by way of example only:-

Example 1

Flax straw was pulled mechanically and picked up by a large round baler, making bales of about 400 kg with a moisture content of about 65%. The bales were taken to the store where they were weighed and

placed into large 1000 gauge black polythene bags. Sulphur dioxide equivalent to 2% by weight of the flax dry matter was released into the bag from a cylinder, prior to sealing the bag. The sealed bags were opened after 3 months and the bales unrolled and made up into beets which were dried in the open air. The flax was then deseeded, scutched and hackled in the normal way to produce a slightly bleached and partly retted flax fibre.

Example 2

Flax straw was pulled mechanically and made up by hand into beets straight after pulling (65% moisture content) or after a period of wilting (55% and 35% moisture content). The beets were placed into large polythene sacks and sealed either without treatment or after treatment with formic acid, propionic acid or sulphur dioxide at 2% by weight of dry flax.

The sacks were opened after a six week storage period and examined for the presence of moulds and for the quality of the flax. It was found that the formic acid and propionic treated flaxes, untreated by sulphur dioxide, showed visible mould development and the strength of the fibre was reduced to a variable degree. The sulphur dioxide material was bleached to a yellow colour, and had no visible mould growth present. It also had a very consistent presentation in terms of fibre fineness and strength, and quality was on average superior to that of the other treatments at all three moisture contents.

It is to be understood that the above described embodiments are by way of illustration only and many modifications and variations may be made within the scope of the invention.

Claims

1. A method of treatment of flax straw comprising the infusion of a gas through moist flax straw so as to provide conditions which inhibit the activity of any micro-organism which causes deterioration of the flax.
2. A method of treatment of flax straw as claimed in claim 1, wherein said method improves the processing characteristics of the straw.
3. A method of treatment of flax straw as claimed in claim 1 or claim 2, wherein the gas comprises sulphur dioxide.
4. A method of treatment of flax straw as claimed in claim 1, claim 2 or claim 3, wherein 2% or less of the gas by weight of the dry flax is used.
5. A method of treatment of flax straw as claimed in

any preceding claim, wherein the moisture content of the flax is in the range from 30% to 70% by weight of the dry flax.

6. A method of treatment of flax as claimed in any preceding claim, wherein said method is carried out in a sealed container. 5

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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	SOVIET PATENTS ABSTRACTS Section PQ, Week 8925, 2 August 1989 Derwent Publications Ltd., London, GB; Class P1, Page 12, AN 89-184743/25 & SU-A-1 428 281 (NON-BLACK SOIL AGRI) 7 October 1988 * abstract *	1, 2, 4-6	B27K9/00
A	WO-A-8 500 133 (BIOTEKNISK INSTITUT) * page 1, line 6-36 * * page 5, line 16 - page 6, line 13; claims 1-4, 10, 11 *	1-6	
A	US-A-4 045 554 (E.L. SPRINGER) * column 2, line 13 - line 46; claim 2 *	1-6	
A	S. BUDAVARI ET AL 'THE MERCK INDEX, AN ENCYCLOPEDIA OF CHEMICALS, DRUGS, AND BIOLOGICALS' 1989, MERCK & CO., RAHWAY, N.J., U.S. 11TH EDITION, * Page 1417, Entry No. 8950. Sulfur Dioxide*	1-3	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B27K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 08 JANUARY 1992	Examiner FLETCHER A.S.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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