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Process for eliminating smell defects and/or off-flavours in fermented or non-fermented fruit juices, in particular wine, fruit wine or fruit distillate products

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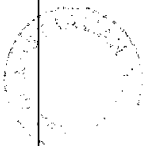
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<p>(21) Internationales Aktenzeichen: PCT/EP96/02056 (22) Internationales Anmeldedatum: 14. Mai 1996 (14.05.96) (30) Prioritätsdaten: 195 17 845.9 16. Mai 1995 (16.05.95) DE (71)(72) Anmelder und Erfinder: SCHOLL, Willy [DE/DE]; Im Eichheck 13, D-76327 Pfinztal (DE). ESCHNAUER, Heinz [DE/DE]; Geinhäuserstrasse 15, D-63579 Freigericht-Somborn (DE). (74) Anwalt: BECKER, Maria; Auf dem Haigst 29, D-70597 Stuttgart (DE). (17) Erbsloh Geisenheim Getränke-Technologie GmbH &amp; Co. KG Erbschstr. 1, D-65366 Geisenheim Germany</p>		<p>(81) Bestimmungsstaaten: AU, US, europäisches Patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). <b>Veröffentlicht</b> <i>Mit internationalem Recherchenbericht. Vor Ablauf der für Änderungen der Ansprüche zugelassenen Frist. Veröffentlichung wird wiederholt falls Änderungen eintreffen.</i></p>
<p>(54) Title: PROCESS FOR ELIMINATING SMELL DEFECTS AND/OR OFF-FLAVOURS IN FERMENTED OR NON-FERMENTED FRUIT JUICES, IN PARTICULAR WINE, FRUIT WINE OR FRUIT DISTILLATE PRODUCTS (54) Bezeichnung: VERFAHREN ZUR BESEITIGUNG VON GERUCHS- UND/ODER GESCHMACKSFEHLERN IN UNVERGORENEN ODER VERGORENEN FRUCHTSÄFTEN, INSBESONDERE WEIN, FRUCHTWEIN ODER FRUCHTDESTILLATEN (57) Abstract In order to eliminate smell defects and/or off-flavours due to sulphur or sulphur compounds in fermented or non-fermented fruit or grape juices, in particular wine, hardly soluble or insoluble organic Cu compounds are added to the liquid and react with the sulphur or sulphur compounds, forming insoluble sulphides that may be removed from the liquid by sedimentation without any problem. Copper salts of citric acid, tartaric acid, malic acid or stearic acid or mixtures of said salts are particularly suitable for that purpose. (57) Zusammenfassung Zur Beseitigung der als "Böckser" bezeichneten, von Schwefel- oder Schwefelverbindungen stammenden Geruchs- und/oder Geschmacksfehlern in unvergorenen oder vergorenen Fruchtsäften aus Obst oder Trauben, insbesondere Wein, wird erfindungsgemäß vorgeschlagen, der Flüssigkeit schwerlösliche oder unlösliche organische Cu-Verbindungen zuzusetzen, die durch Reaktion mit dem Schwefel bzw. den Schwefelverbindungen unlösliche Sulfide bilden, die problemlos aus der Flüssigkeit durch Ausfällung abgetrennt werden. Insbesondere eignen sich hierfür Kupfersalze der Zitronensäure, Weinsäure, Apfelsäure oder Stearinsäure bzw. Mischungen der genannten Salze.</p>		



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**Process for eliminating from non-fermented or fermented fruit juices, in particular wine, fruit wine or fruit distillates, undesirable odours and/or tastes**

The invention relates to a process for eliminating from non-fermented or fermented fruit juices obtained from fruit or grapes, in particular wine, fruit wine or fruit distillates, undesirable odours and/or tastes which are caused by the formation of sulphur compounds, in particular hydrogen sulphide.

During the reductive fermenting of fruit juices, hydrogen sulphide and other sulphur compounds occur. The resultant adverse effect on the aroma and taste of the fermentation products, called "Böckser" (in German), is unpleasant and persistent.

Various treatment methods and cellar measures are known to remove the "Böckser", such as adsorption on bentonites or activated charcoal, aeration, filtration. However, these processes have the disadvantage that their use has a considerable adverse effect on the quality of the wine.

Also known is the use of copper sulphate, which is allowed as a food additive, to remove the "Böckser". The excess copper must then be removed by precipitation with potassium hexacyanoferrate-II. Such a

treatment is environmentally harmful, extremely labour intensive and outmoded.

To remove the "Böckser", it is also known to mix the fermentation products with electrolytically precipitated metal ions, preferably Ag-ions which form insoluble salts with the substances in the liquid that cause the undesirable odours and taste. This method, known as the catadyn process, results in harmful Ag-ions in the wine. This process is at best suitable for alcohol distillates.

It is the object of the invention to eliminate the aforementioned disadvantages that occur during the removal of the "Böckser" and to indicate an environmentally friendly process.

According to the invention this object is achieved by the characterising features of claim 1 in that organic Cu-compounds are added to the fruit juices, wine, fruit wine or fruit distillates, which Cu-compounds are hardly soluble or insoluble in water as well as in non-fermented and fermented fruit juices, wine, fruit wine or fruit distillates and which, by reacting with the sulphur compounds, form insoluble sulphides that are separated from the liquid by precipitation. The insoluble sulphides formed when organic copper compounds react with the sulphur compounds to be removed can easily be separated from the wine, fruit wine, fruit distillates or fruit juices as insoluble solids.

Hardly soluble or insoluble copper salts of citric acid, tartaric acid, malic acid, stearic acid or lactic acid, which have the advantage that they are suitable food additives and not harmful from an ecological point of view,

have proved particularly suitable for the process according to the invention.

Preferably, copper salts of monovalent or multivalent carboxylic acids, e.g. copper stearate, copper citrate, copper malate, copper tartrate, copper lactate are used, which react with the sulphur compounds to form insoluble copper sulphide.

Also mixtures of the above-mentioned salts can be used with the same advantage.

A particularly good efficacy is obtained when the copper compounds are used in combination with adsorption agents or filter aids, in which connection bentonites are particularly suitable as adsorption agents. They have a high swelling ability and good ion exchange ability and serve to agglomerate the copper compounds.

The crushed bentonite compound can be impregnated with soluble copper salts and then be acted upon with carboxylic acids to form the insoluble carboxylate.

For the implementation of the process according to the invention it is advantageous to mix granulates of aqueous suspensions of bentonite with copper carboxylates that are obtained, for example, by spray drying.

Also activated charcoal, possibly combined with bentonite, can be used as adsorption agent.

Hereafter, the invention will be described with reference to an example:

5 g of pure copper citrate are mixed with 95 g bentonite. The granulated mixture is introduced into 1000 l wine contaminated with "Böckser" and stirred for about 2 hours. After the precipitation the wine is siphoned off and filtered. The organoleptic test showed a perfect drinking quality of the previously undrinkable wine.

CLAIMS

1. A process for eliminating undesirable odours and/or tastes from non-fermented or fermented fruit juices obtained from fruit or grapes, in particular wine, fruit wine or fruit distillates, the cause of which lies in the formation of sulphur compounds, in particular hydrogen sulphide, by adding Cu-compounds,  
**characterised in that**  
organic Cu-compounds are added to the fruit juices, wine, fruit wine or fruit distillates, which compounds are hardly soluble or insoluble in water as well as in non-fermented and fermented fruit juices, wine, fruit wine or fruit distillates, and which, by reacting with the sulphur compounds, form insoluble sulphides that are separated from the liquid by precipitation, .
2. A process according to claim 1, characterised in that hardly soluble or insoluble copper salts of monovalent or multivalent carboxylic acids are used.
3. A process according to claim 1 or claim 2, characterised in that copper salts of monovalent or multivalent carboxylic acids, such as copper stearate, copper citrate, copper malate, copper tartrate, copper lactate or mixtures of these salts are used as Cu-compounds.
4. A process according to any one of the preceding claims, characterised in that the Cu-compounds are used together with adsorption agents, in particular bentonite.

5. A process according to claim 4, characterised in that bentonite is used as a granulate which is mixed with copper salts and is then acted upon with carboxylic acids.