coffee ratio's, is suitable for preparing liquid concentrates having an improved coffee flavor/aroma. The method as disclosed, however, does not result in an espresso-type of coffee concentrate.

It is desired to make a liquid coffee concentrate that is suitable for providing an espresso-type of coffee brew. It is further desired to provide such a liquid coffee concentrate in an economically viable process. A particular desire is to provide a liquid coffee concentrate with improved sensorial characteristics.

Summary of the invention

In order to better address one or more of the foregoing desires, disclosed is a

method for preparing a coffee concentrate comprising the steps of:

(a) providing ground roasted coffee beans having an average Martin diameter minimal value of from 0.5 to 3 mm;

(b) subjecting the ground roasted coffee beans to primary extraction with water, so as to obtain a first primary extract with a draw-off factor of at most 2;

(c) drawing off a second primary extract after said first primary extract;

(d) subjecting the primarily extracted ground roasted coffee beans to a secondary extraction with water, so as to obtain a secondary extract;

(e) subjecting the second primary extract and the secondary extract to evaporation so as to obtain a concentrated extract having a dry solid matter content of from 30 wt.% to 75 wt.%;

(f) combining the concentrated extract with the first primary extract;

(g) optionally adding water;

so as to obtain a liquid coffee concentrate having a dry solid matter content of from 15 wt.% to 55 wt.%, wherein the primary extraction is conducted under such conditions as to satisfy a mass transfer Fourier

number of at least 0.35; and wherein the ratio of the extraction yield of the first primary draw-off to the extraction yield obtained in all extraction sections is in a range of from 0.15 to 1.0.

Also disclosed is a coffee concentrate comprising 15% to 55% dry solid matter, obtainable by the foregoing process of the invention.

In one aspect, the invention pertains to a coffee concentrate comprising 15% to 55% dry solid matter, characterized by comprising 1-caffeoylquinic acid lactone (1-CQL) in an amount of at least 450 mg chlorogenic acid equivalents per kg of dry solid matter.

Brief description of the drawings

Fig.1 is a flow scheme for an embodiment of the process of the invention;
Fig. 2 shows the overlaid UV-Vis absorbance spectra of chlorogenic acid and 1-caffeoylquinic acid lactone (1-CQL);
Fig. 3 is a calibration curve for chlorogenic acid.
Fig. 4 is an HPLC-PDA-TOF MS chromatogram of a 5 µl injection of a chlorogenic acid standard solution at a concentration of 50µg/ml;
Fig. 5 is an HPLC-TOF MS chromatogram (ESI negative mode) of a chlorogenic acid standard at a concentration 10 µg/ml water.

Detailed description of the invention

In a broad sense, the invention is based on the judicious insight that a liquid espresso concentrate can be made by a process involving a primary and a secondary extraction, whereby the primary extraction is conducted in a way so as to improve flavor/aroma extraction, and whereby the total extraction is conducted in a consciously reduced total extraction yield. The latter is reflected in the ratio of first primary draw-off extraction yield and total extraction yield. The former is reflected in the Fourier mass transfer number, which is further detailed later in this description.

Claims

1. A coffee concentrate comprising 15% to 55% dry solid matter, characterized by comprising 1-caffeoylquinic acid lactone (1-CQL) in an amount of at least 450 mg chlorogenic acid equivalents per kg of dry solid matter.

2. A coffee concentrate according to claim 1, characterized by comprising 1-caffeoylquinic acid lactone (1-CQL) in an amount of at least 510 mg chlorogenic acid equivalents per kg of dry solid matter.

3. A coffee concentrate according to any one of the preceding claims, characterized by comprising 1-caffeoylquinic acid lactone (1-CQL) in an amount of at least 590 mg chlorogenic acid equivalents per kg of dry solid matter.