Claims

1. A method for lutein extraction comprising:
degumming silk materials in an aqueous phase to obtain a degumming solution and degummed silk materials;
separating the degummed silk materials from the degumming solution;
contacting the degumming solution and the degummed silk materials respectively with an extraction solvent to extract lutein from the degumming solution and the degummed silk materials;
acquiring the contacted extraction solvent; and
drying the contacted extraction solvent to obtain dried residue containing lutein, wherein the extraction solvent is a mixture of hexane, ethanol and ethyl acetate respectively in a ratio of 3: 2: 1 by volume, wherein the silk materials are any one or combination of yellow silk cocoons, silk yarn, silk fibers and silk waste.

2. The method as in claim 1, further comprising:
dissolving the obtained dried residue to form a second solution; and
filtering the second solution to obtain purified lutein dissolved in the second solution.

3. The method as in claim 1, wherein the extraction solvent further comprises 0.1% (w/v) of butylated hydroxytoluene and/or butylated hydroxyanisole.

4. The method as in claim 1, wherein the degumming: comprises heating of the silk materials and the aqueous phase.

5. The method as in claim 1, wherein the acquiring contacted extraction solvent from the degumming solution comprises partitioning the extraction solvent and the aqueous phase.

6. The method as in claim 5, wherein the partitioning further comprises adding aqueous sodium chloride to the extraction solvent.

7. The method as in claim 1, wherein the drying of the extraction solvent comprises adding anhydrous sodium sulfate to the extraction solvent.

8. The method as in claim 2, wherein ~~the second solution is~~dissolving the obtained dried residue comprises dissolving the obtained dried residue in a mixture of hexane and ethyl acetate in a ratio of 3: 1 by volume.

9. The method as in claim ~~1~~2, wherein filtering the second solution comprises filtering the second solution through a syringe filter.