CLAIMS

1. A method for purifying sialylated oligosaccharides that were produced by microbial fermentation and secreted into the fermentation broth, the method comprising the steps of

   i) separating cells present in the fermentation broth at the end of the fermentation from the fermentation broth to obtain a cell-free fermentation broth by subjecting the fermentation broth to ultrafiltration or microfiltration;

   ii) removing cations from the cell-free fermentation broth by subjecting the cell-free fermentation broth to cation exchange chromatography;

   iii) removing anionic impurities from the cell-free fermentation broth by subjecting the cell-free fermentation broth to anion exchange chromatography; and

   iv) removing compounds having a molecular weight lower than that of the desired sialylated oligosaccharide to be purified from the fermentation broth by subjecting the cell-free fermentation broth to diafiltration or cross-flow filtration, and

   v) increasing the concentration of the sialylated oligosaccharide by using one of vacuum evaporation, reverse osmosis and nanofiltration to a concentration of ≥ 100 g/L and at a temperature of < 80 °C.

   wherein the desired sialylated oligosaccharides are selected from the group consisting of 3'-SL, 6'-SL, LST-a, LST-b, LST-c, 3-F-SL, DS-LNT and F-LST-b and wherein the method further comprises a step of electrodialysis wherein (i) acidic conditions are applied during electrodialysis or (ii) neutral conditions are applied during electrodialysis using bipolar membranes.

2. The method according to claim 1, further comprising one or more steps selected from the group consisting of

i) removing non-desired oligosaccharides by subjecting the cell-free fermentation broth to simulated moving bed chromatography;

ii) removing colorants by treating the cell-free fermentation broth with activated carbon;

iii) removing endotoxins by filtering the solution containing the desired oligosaccharide through a 6 kDa filter or a 3 kDa filter;

iv) sterilizing by filtration through a 0.2 µm filter; and

v) spray-drying or crystallizing the sialylated oligosaccharide.

3. The method according to any one of claims 1 to 2, wherein removing biomass from the fermentation broth is performed by subjecting the fermentation broth to an ultrafiltration, preferably to an ultrafiltration removing the biomass and compounds having a molecular weight of ≥ 500 kDa from the fermentation broth, more preferably to an ultrafiltration removing the biomass and compounds having a molecular weight of ≥ 150 kDa from the fermentation broth, and most preferably to an ultrafiltration removing the biomass and compounds having a molecular weight of ≥ 100 kDa from the fermentation broth.

~~4. The method according to any one of claims 1 to 3 further comprising a step of electrodialysis.~~