hemicellulose extract is filtered to obtain xylooligosaccharides as filtrate and cellulose as residue. The cellulose residue is treated with an enzyme solution of pH 5.0 for 2 hrs, to hydrolyze the cellulose into cellooligosaccharides.

One object of present invention is to provide a process for obtaining soluble arabinoxylooligosaccharides, soluble xylooligosaccharides and soluble cellooligosaccharides having a degree of polymerization greater than 4.

[0022] The present invention provides for a process for fractionation of oligosaccharides from agri-waste wherein the process comprises of treating the holocellulose, obtained from agri-waste, with water at a temperature ranging from 100 to 140°C for 30 mins, to obtain aqueous extract containing arabinoxylooligosaccharides.

[0023] Another object of the present invention is to provide a process for production of xylooligosaccharides from water insoluble solid fraction using thermo-alkaline process devoid of enzymes such as arabinoxylanases and xylanases.

[0024] One of the objects of the present invention is to produce soluble cellooligosaccharides having degree of polymerization greater than 4, by controlled enzymatic hydrolysis of cellulose residue.

[0024a] The present invention provides for a sequential process for fractionation of different oligosaccharides from holocellulose comprising of: a) mixing holocellulose with an aqueous medium at a temperature ranging from 100- 140°C for 20 - 40 min, preferably for 30mins, to obtain an aqueous extract containing soluble arabinoxylooligosaccharides and an insoluble solid fraction; b) treating the solid fraction obtained from step (a) with an aqueous alkali solution, at a temperature in the range of 100- 150°C for 20 - 40 mins, preferably for 30 mins,

to obtain hemicellulose extract comprising soluble xylooligosaccharides and cellulose residue; c) suspending the cellulose residue obtained from step (b) in aqueous acid solution to obtain a cellulose slurry; and d) treating the cellulose slurry obtained from step (c) with an enzyme at a controlled temperature in the range of 45- 55°C for the period of 2 hrs to obtain cellulose extract containing soluble cellooligosaccharides.

[0025] Thus the present invention provides for stepwise treatment of holocellulose, obtained from agri waste, with water, alkali and enzyme to yield separate product streams containing soluble arabinoxylooligosaccharides, xylooligosaccharides and cellooligosaccharides respectively. The present invention is cost effective since all the chemical extractions are carried out at milder conditions. The prevent invention also does away with the requirement of additional step for purification of oligosaccharides as the process generates separate product streams containing different oligosaccharides.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] The invention will be described further with respect to the following in which: