

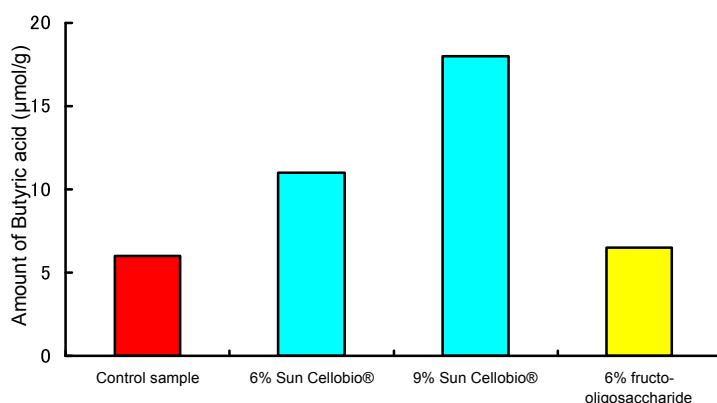


## Cello-oligosaccharides: Bioactivity data

It has been determined that when Sun Cellobio® is fermented in the intestinal cecum it produces more butyric acid than is the case with other oligosaccharides. In animal models it has been shown to alleviate the inflammation of ulcerative colitis. Also, if Sun Cellobio® is fed to pigs, it improves lipid metabolism and inhibits fat accumulation clearly.

### Butyric Acid Production (in Shizuoka University Faculty of Agriculture)

#### Amount of butyric acid produced

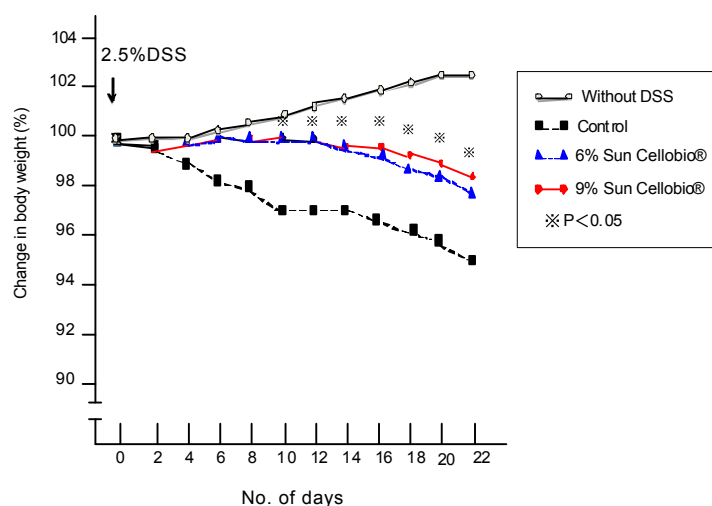


Rats were given feed with 6,9% of either Sun Cellobio® or fructo-oligosaccharide for a period of 2 weeks, after which the quantity of short-chain fatty acids in the cecum was measured.

This experiment demonstrated that the rats given Sun Cellobio® had approximately twice the amount of butyric acid compared to the rats that were given fructo-oligosaccharide.

### Effect on Chronic Ulcerative Colitis (in Shiga University of Medical Science)

#### Change in body weight



20 female BALB/cA mice were divided into four groups (Sun Cellobio® administering group (6%,9%), the control group and the non-administration group). Sun Cellobio® administering group (6%,9%) and the control group were administered 2.5%DSS (dextran sulfate sodiumu)distilled water for 25 days with a free drinking water. The non-administration group gave distilled water that did not contain DSS. There was no significant difference in weight change between the two Sun Cellobio® groups (6% & 9%), but compared with the mice given only DSS, both Sun Cellobio® groups showed a significant suppression of weight loss.

#### For inquires & information about these products:

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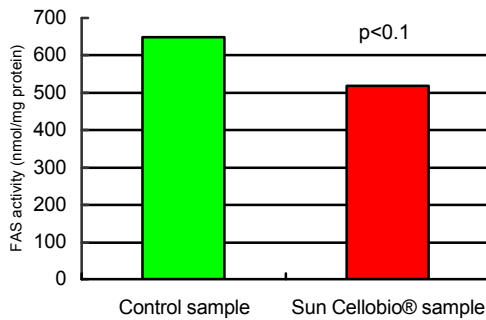


### Improvement in Lipid Metabolism (National Institute of Livestock and Grassland Science)

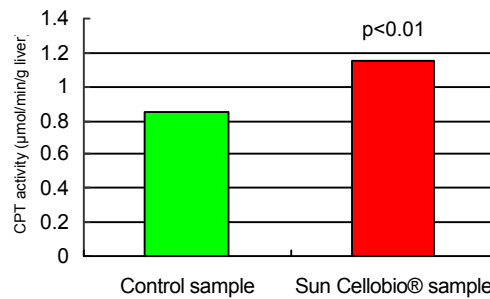
Sun Cellobio® was added to the feed of LWD fattening pigs at a concentration of 0.6% and administered for a period of 4 weeks, after which the activity of two enzymatic systems, one synthetic (FAS in adipose tissue) and the other degrading (CPT in the liver), was measured.

In the Sun Cellobio® sample, suppression of FAS activity in adipose tissue was observed ( $p < 0.10$ ); conversely, CPT activity in the liver was significantly increased ( $p < 0.01$ ). If Sun Cellobio® is given to fattening pigs their lipid metabolism is affected and there is a clear possibility that fat deposition is suppressed.

#### Synthetic enzymatic activity



#### Degrading enzymatic activity



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