

## Kaumera Nereda® Gum

### Biostimulant development

Bacteria in the Nereda® sludge form granules which contain biopolymers. These biopolymers, which are synthesized by the bacteria using sewage water as feedstock, is called Kaumera.

Nereda® water treatment, a technology proprietary of Royal HaskoningDHV, is being implemented globally as a cost effective and better performing treatment process for industrial and municipal sewage.

An industrial extraction process for Kaumera has been developed and implemented at two demonstration sites in the Netherlands.



1 Granules form in the Nereda purification process

### Description

Kaumera is a structural component of the biofilm globules that form the Nereda granular sludge. The technical name for this is Extracellular Polymeric Substance (EPS), referring to the fact that it consists of biopolymers secreted by micro-organisms living in the biofilm. It contains sequences of saccharides and amino acids that could be recognised as a microbial associated molecular pattern.

### Typical Data

Characteristic appearance	Hydrogel
Dry matter	7%
Proteins	39%
Saccharides	17%
Phosphate (Organo)	6%
Inorganic (KCL)	21%

### Application

First studies show the application of Kaumera as a **Biostimulant**. It enhances plant growth by improving tolerance to abiotic stresses and boosting root growth during the first phenological stages. The molecular pattern could stimulate growth responses in plants microbiome.

#### Kaumera Market Hub

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## Benefits

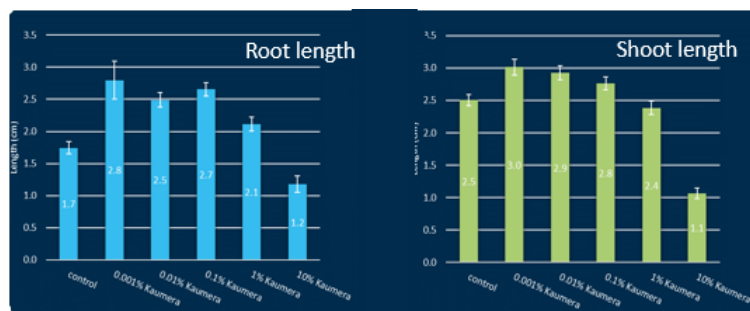
- Fully biodegradable and used in plant metabolism
- 100% biobased product
- Plant Biostimulant
- Low carbon footprint
- Circular raw material

## Miscellaneous information Sample

Storage: storage temperature between 5-8 dgr. C

Shelf life: minimum of 3 months, unopened packaging and stored at above mentioned temperatures

Sample size: 1, 5 and 10 l.



## Preliminary Research

**Mungbean bioassay.** Mungbeans were germinated on rockwool and cuttings were made. The cuttings were incubated for 30min in a test solution including Kaumera and control solutions. Then they were incubated in tap water to take root. After 8 days root development was observed.

**Results:** Root length increased in samples treated with Kaumera

**Wheat germination.** Wheat seeds were soaked for 4h in a Kaumera solution or tap water control after which they were germinate top-of-paper. Five days after sowing, root and shoot mass en length was measured. **Results:** Root length increased with 47%, shoot length increased with 20%

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