

Enzymes in Sugar Processing



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POLYSACCHARIDES in Sugar

Polysaccharides are long chain molecules of simple sugar linked together either straight or branched manner but in a definite fashion. Polysaccharides found in sugar cane are derived from two sources.

1. DEXTRAN

Highly branched Glucose polymer contains Alpha-1,6 along with 1-3 glycosidic linkages

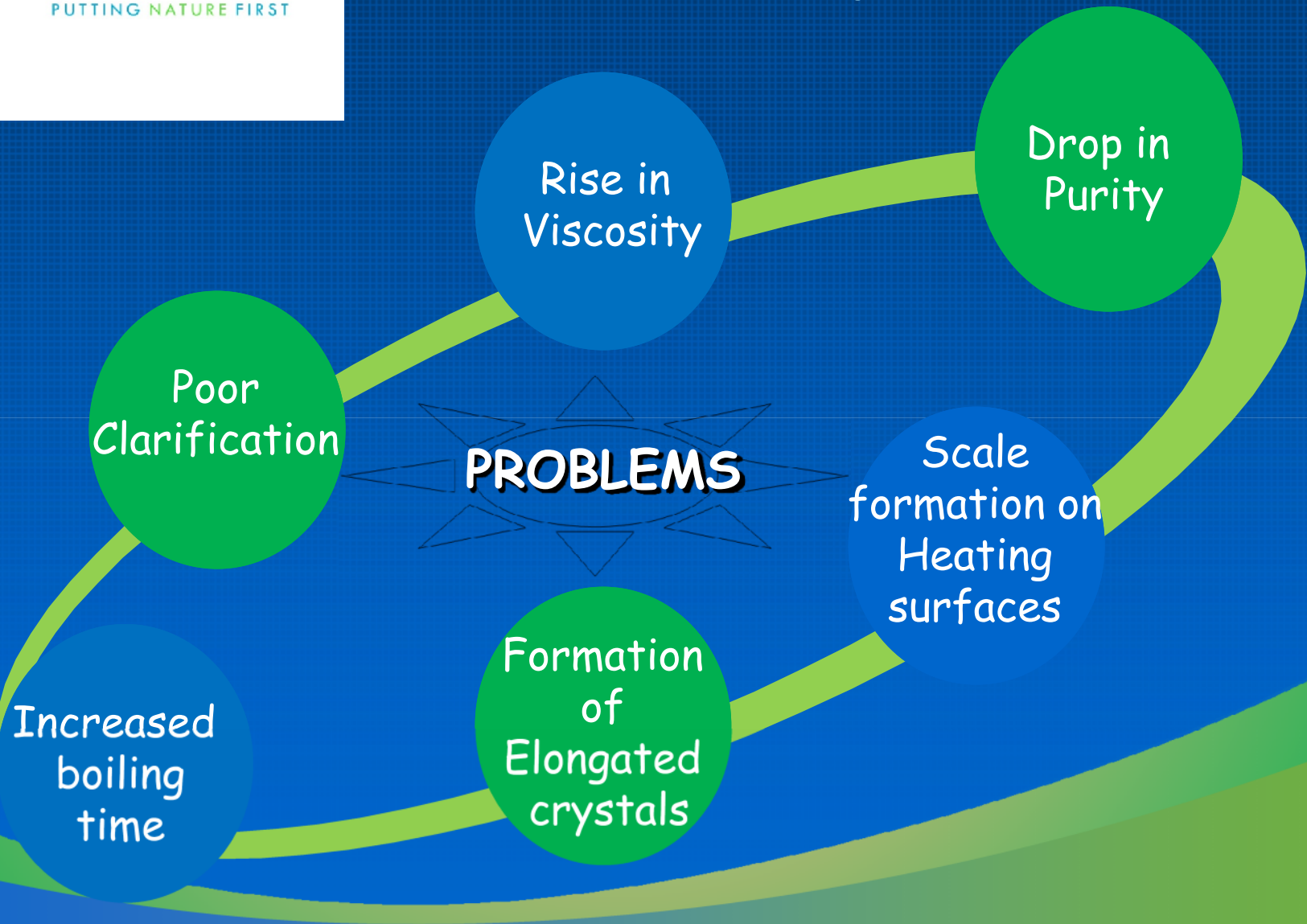
2. STARCH

Storage polysaccharide formed due to metabolic activity of growing plant



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Effects of Polysaccharides



HIGHLY
COMPLEX
GLUCOSE
POLYMER

HAVING
Alpha-1,6 &
1,3-GLYCOSIDIC
Linage

PRODUCT
OF
LEUCONOSTOC
INFECTION

CAUSES
SEVERE
PROCESS
DEFECIENCIES

DEXTRAN

EVERY
UNIT OF
DEXTRAN
CONSUMES
FOUR
MOLECULES
OF
SUCROSE

PRODUCTION
OF POOR
QUALITY
SUGAR
DUE
TO
DEXTRAN

CREATES
HIGH
VISCOSITY
HIGH
STEAM % CANE
&
POOR
CLARIFICATION

HIGHLY
COMPLEX
STORAGE
POLYMER

HAVING
Alpha-1,4 &
1,4-GLYCOSIDIC
Linage

FOUND
HIGH IN
IMMATURE or
MATURING
CANE

CAUSES
SEVERE
PROCESS
DIFFICULTIES

STARCH

CREATES
HIGH
VISCOSITY
HIGH
STEAM % CANE
&
POOR
CLARIFICATION

250-300PPM
STACH
IN
RAW SUGAR
CREATES
PROCESS
DIFFICULTIES
IN
REFINERIES



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USE OF ENZYMES FOR DEXTRAN & STARCH REMOVAL

NZYDEX S [DEXTRANASE ENZYME]

ENZYME FOR DEXTRAN
HYDROLYSIS

DOSAGE:

4-6 ppm on CANE IN
MIXED JUICE

3-5 ppm IN SYRUP

10-15 ppm on RAW SUGAR
IN REFINERY

NZYAMY S [AMYLASE ENZYME]

ENZYME FOR STARCH
HYDROLYSIS

DOSAGE:

5-7 ppm on CANE IN
MIXED JUICE

3-5 ppm IN SYRUP

20-30 ppm on RAW SUGAR
IN REFINERY



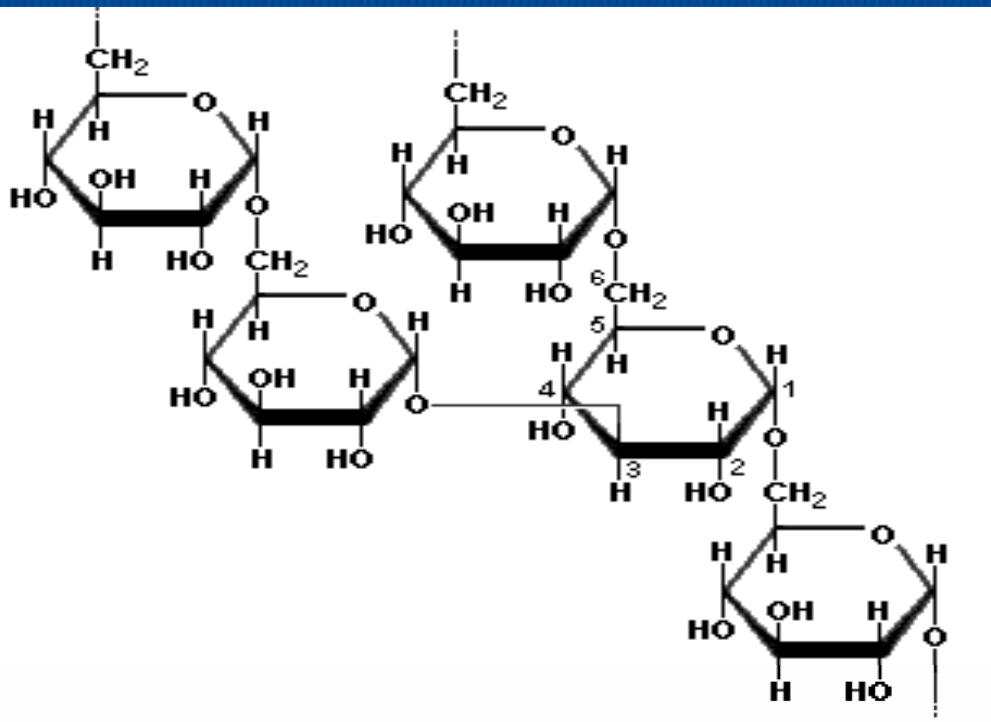
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Application of *Nzydex S* on Dextran in Sugar

NZYDEX-S

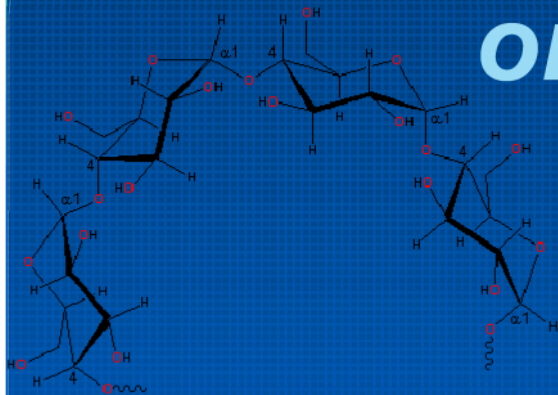
OligoSaccharides

Do not cause increase in viscosity
Soluble in Sugar cane juice



Partial structure of Dextran

Application of NZYAMY-S on starch in Sugar

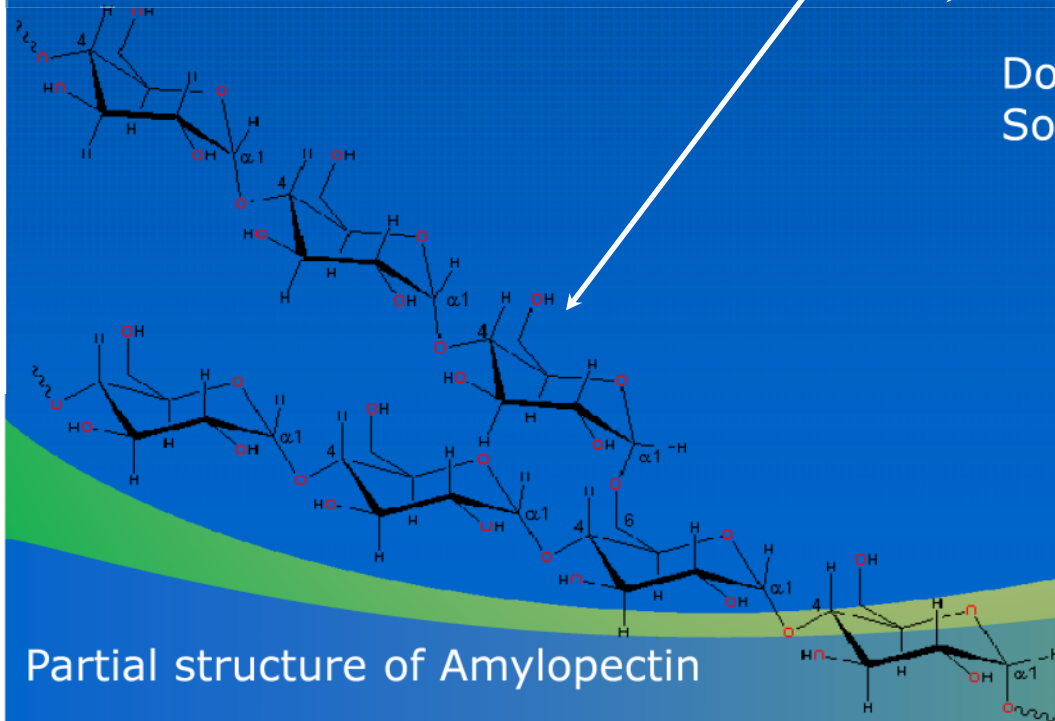


Partial structure of Amylose

NZYAMY-S

Dextrin

Do not cause increase in viscosity
Soluble in Sugar cane juice



Partial structure of Amylopectin

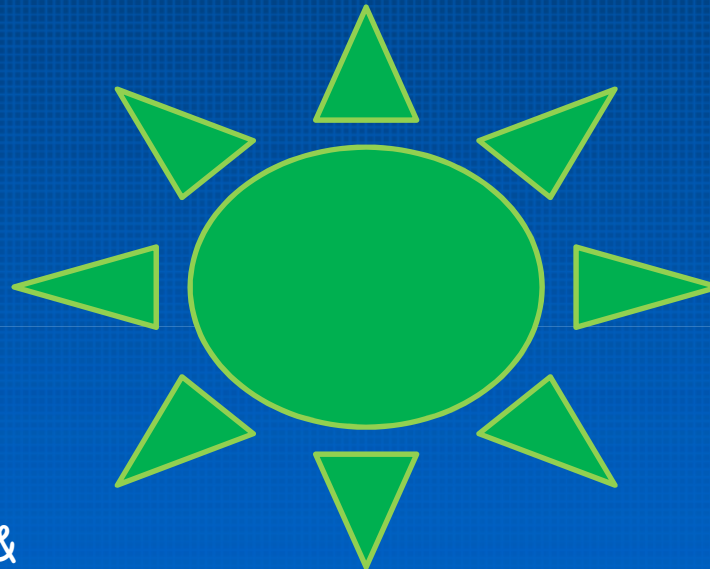


Our Expertise=Your Benefit

REDUCTION
IN VISCOSITY
AT SYRUP &
MASSECUITES

HIGH QUALITY
SUGAR

IMPROVEMENT
IN CLARITY



IMPROVEMENT
IN
BOILING RATE &
CRYSTALLIZATION

IMPROVED
EXHAUSTIBILITY
OF MASSECUITES

REDUCED
FINAL
MOLASSES
PURITY

TRIALS METHODOLOGY

- First step is to Analyze DEXTRAN & STARCH Level at various stages of the process.
- Samples from various stages are drawn and Enzyme application to be done at lab level to determine the enzyme dosage that will required for plant scale use.
- Dosages of the Enzymes depend on the level of DEXTRAN & STARCH at single or variable points and are different from plant to plant.



Contact Us...

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