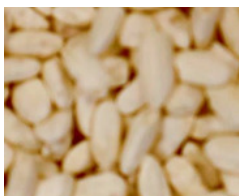


# Koji Beer

~Refreshing *citric acidity* from koji~

Koji



+



Beer



Why don't you try something new ?



# 1.What is Koji ??

Koji is used for

The Effect of Koji

The type of Koji



# Koji is used for ...

## Japanese alcohol beverage



### Sake

Fermented liquor which represents Japan and its main raw material is rice.

Yellow koji is mainly used in sake. The enzyme of koji convert the starch to glucose, and the yeast produce alcohol from glucose.



### Shochu

Spirits which represents Japan and its main raw material is barley, sweet potato, rice and etc.

White koji which produces citric acid is mainly used. Koji converts the starch of grain to glucose.

## Seasoning



### Salted koji

Seasoning made by saccharified rice koji with salt.

The meat or fish will be tender by the enzyme of the koji when it soaked in to salted koji. Also there is an effect of producing Umami ingredient by amino acid.

## Non-alcohol



### Amazake

Amazake is said to be drinkable IV shot. It's a Japanese traditional sweet beverage.

Amazake made by only rice koji is non alcohol and it contains a lot of amino acid and vitamin from koji.

## New Challenge



### Craft beer

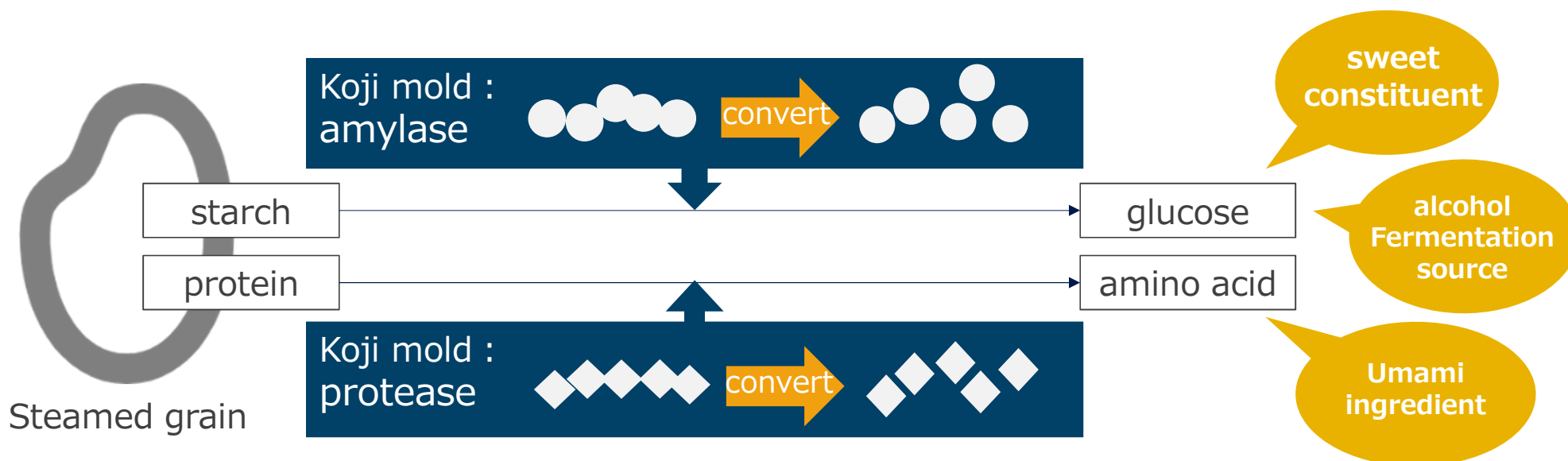
Craft beer which has a diversity of style attracts consumers.

Especially, using the white koji which produce the natural citric acid except for malt makes the acidity of fresh and fruity taste.



# The Effect of Koji

Enzyme Specification		Effects
amylase	$\alpha$ -amylase	Converting starch to dextrin
	glucoamylase	Converting dextrin to glucose
protease	acid protease	Converting protein to peptide
	acid carboxypeptidase	Converting peptide to amino acid



# The types of Koji

## Specification example **Yellow Koji**

koji mold		Aspergillus oryzae
use applications		sake・miso・amazake・salted koji etc.
enzyme activity (U/g)	$\alpha$ -amylase	1000 or more
	glucoamylase	170 or more
	acid protease	2,000 or more
	acid carboxypeptidase	4,000 or more
acidity		—
characteristic		It is be in wide use (sake, miso, amazake and etc.)

## Recommended for Craft Beer

## Specification example **White Koji**

koji mold		Aspergillus Luchuensis
use applications		shochu・amazake・craft beer etc.
enzyme activity (U/g)	$\alpha$ -amylase	80 or more
	glucoamylase	150 or more
	acid protease	15,000 or more
	acid carboxypeptidase	4,000 or more
acidity		10 or more
characteristic		It contains a lot of <b>citric acid</b> produced in the process of making koji.

Go to next step ↓





## 2.How to use it ??

Difference in acid type

Amylase\_Correation with pH

How to use it



# Difference in acid type



## Acidity from Koji

Characteristic	Sourness of white koji
<u>Acid type</u>	<u>Citric acid (99% or more)</u>
Taste	Specific citric acidity with hints of fruitiness. Sooth and Gentle.
Process of manufacture	Use it as a part of material, and others to normal brewing
Time of souring	Almost same time with regular brewing process.



## Acidity from kettle souring

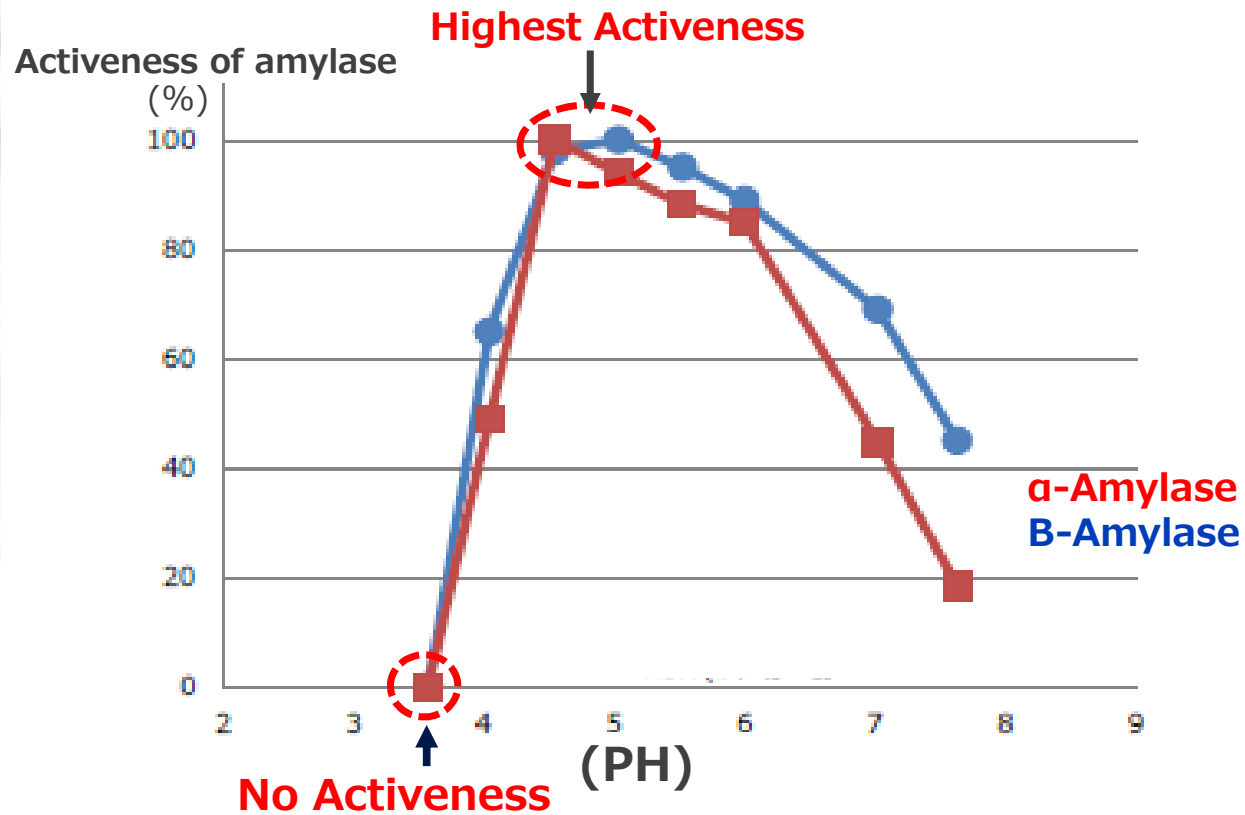
Characteristic	Fermented lactobacillus
<u>Acid type</u>	<u>Mainly lactic acid</u>
Taste	Specific lactic acidity and mostly with fruits infused
Process of manufacture	Fermentation of lactobacillus in the kettle tank
Time of souring	Occupy equipment for a couple of days



**Specific citric acidity with hints of fruitiness  
Time & Space efficiency compared to kettle souring**



# Amylase\_Correlation with PH



Before white koji is directly put into the mash tank, malt needs to be saccharified well for fermentation



# How to use it



- Use in the mashing process
- Add white koji 30 minutes after malt mashing started
- Keep more 30 ~ 40 minutes
- Use white koji about 20~25% of total grain if you want mash pH to be around 4.0 level

Quick and easy operation to get citric acidity from white koji

