



BrewTimes™

MAY 2022



Balaji Enzyme and Chemical Pvt Ltd

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Introducing BrewTimes :

We M/s Balaji Enzyme & Chemical Pvt Ltd, are pleased to bring to you our May 2022 month edition of BrewTimes.

We would like to use this platform to introduce our association with BetaTec, UK for their natural solutions for ethanol recovery in grain and molasses distilleries. The product is revolutionary and unlike any in the market is 100% natural and antibiotics free. Vitahop series of products helps in ensuring optimum yield and keeps the yeast healthy all naturally.

In this month's edition our expert from Mr Bijay Bahadur elaborates about the clarification of the beer process in the brewery and how the various variables impact the clarity of beer.

We are extremely proud of announcing our association with IIT Bombay Research Park. We have begun a journey together to work on sustainable, reliable and innovative solutions for the Food and Beverage Industry.

About Our Company :

We M/s Balaji Enzyme & Chemical Pvt Ltd are a leading supplier of Enzymes, Filter aid, Yeast, Hops, Processing aids, Clarifiers and food fortification products to breweries, distilleries, malt extract industry, starch industry, juice and beverage industry, and other food industry.





Vitahop®

**Increase profits in
BIOETHANOL...naturally**

Vitahop® is a range of natural hop extracts, ideal for production of bioethanol from a range of raw material feedstocks, as they protect yeast from bacterial growth, and their acid by-products, during fermentation processes. When used as part of a planned process regime with regular additions, bacterial infections do not develop and spoil yeast fermentations.

When infections do develop, they can quickly get out of control and disrupt production, potentially causing substantial losses and lost revenue. By controlling bacteria and preventing bacterial growth, catastrophic infections can be a thing of the past.

Vitahop® is used in both continuous and batch fermentations. It helps ensure healthy, vitalised yeast growth and during fermentation suppress gram positive bacteria. If bacteria are allowed to prosper, they will compete with and eventually inhibit the yeast, slowing fermentation sometimes to a complete stop, resulting in a “stuck” fermentation. Bacteria will also use up valuable feedstock producing organic acids such as lactic acid, further reducing ethanol yields. Prevent this happening with **Vitahop®**.

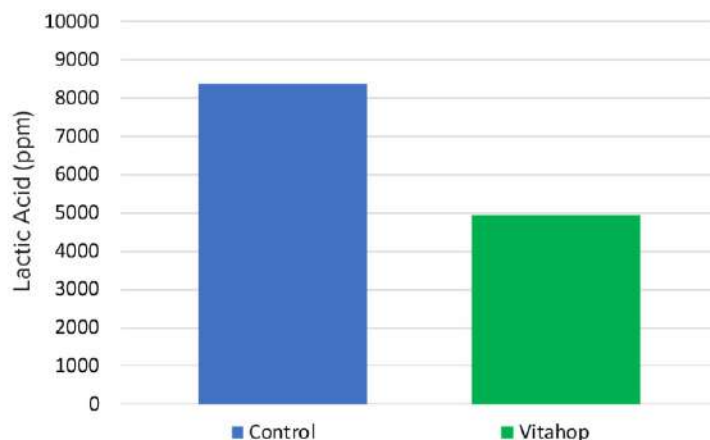


Key Benefits of Vitahop®

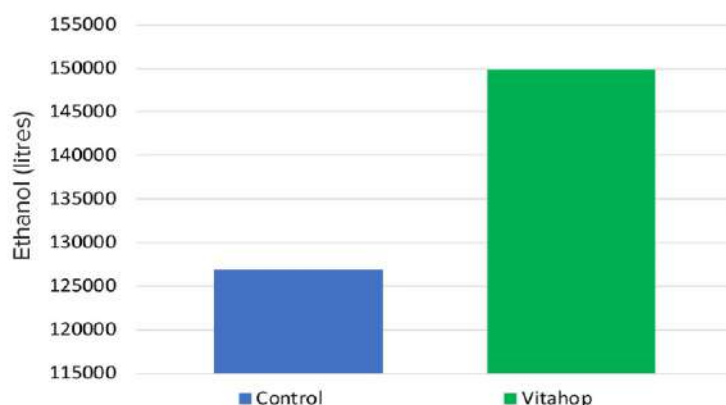
- Maintains optimum ethanol yields
- Ensures reliable fermentations
- Keeps yeast healthy
- Controls bacteria
- Demonstrated benefits in ethanol production plants worldwide
- Safe and natural, easy to use
- Safe DDGS for animal feed
- A natural alternative to antibiotics



Effect of Vitahop® on Average Lactic Acid Production at Fermenter Drop



Effect of Vitahop® on Ethanol Production



Unpublished data BetaTec 2015



BetaTec is the first company worldwide specialising in the application of hops and hop-derived compounds for use in “beyond brewing” industries. Our product portfolio includes natural fermentation aids, antibacterials, flavours and functional ingredients. Our key business areas are alcohol, yeast and sugar production. All BetaTec products are accompanied by on-site support, process optimisation and consulting.

Please contact our technical experts to learn how Vitahop® can help you sustain improved ethanol yields.

BetaTec Corporate Office
5185 MacArthur Blvd NW, Suite 300
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202.777.4800

BetaTec Innovation Centre
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BetaTec® 
hop products

“Transforming your world with our natural hop solutions”



BetaStab® XL

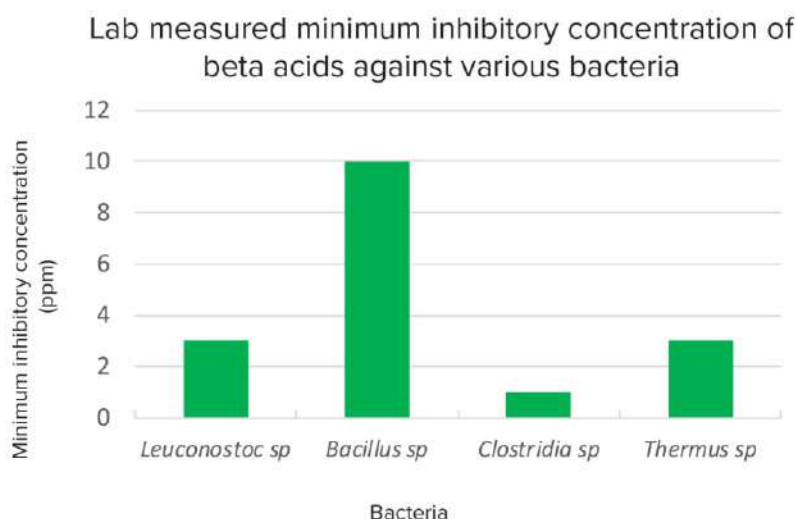
Reduce your sugar losses ...naturally

BetaStab® XL controls problematic Gram positive bacteria found in sugar extraction

Microbial sugar losses are a major problem in sugar production resulting in lower yields, increased processing problems and higher impurities such as lactic acid and dextran.

The hop product BetaStab® XL is a natural food processing aid. For more than 10 years it has proven effective at controlling bacteria in factories worldwide and is a cost effective alternative to synthetic biocides.

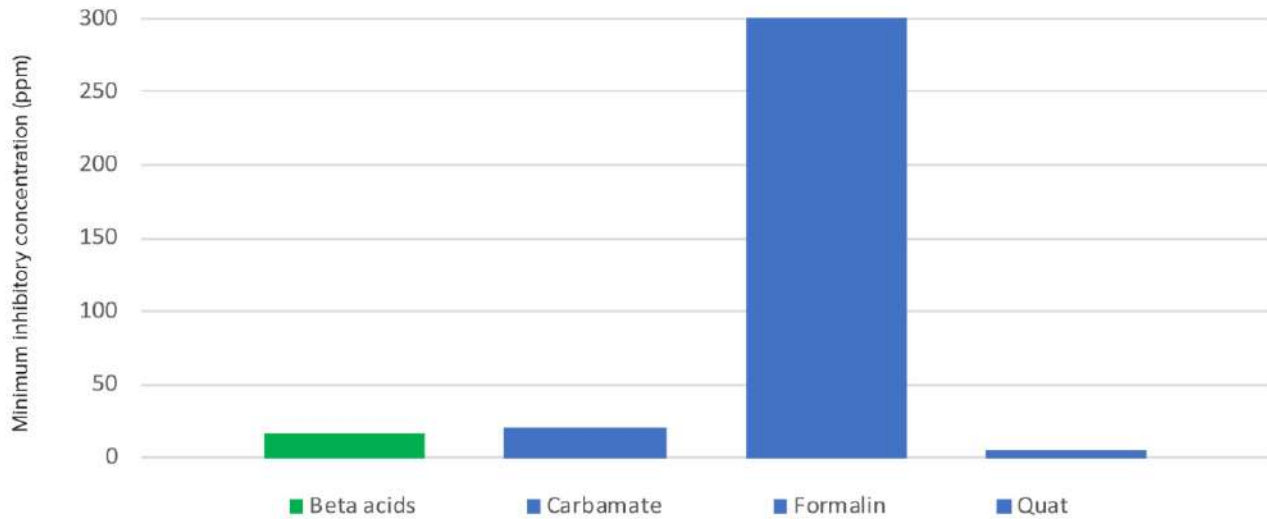
Our product can be applied during the production of sugar from either beet or cane. It is an aqueous solution of natural hop acids and is active over a wide range of temperatures and pH values.



Key advantages of BetaStab® XL

- Active against bacterial contamination at ppm levels. Immediately stops bacterial growth
- Control of lactic acid, dextran and nitrite production
- Effective over a range of pH values and temperatures
- Demonstrated activity in sugar cane mills and sugar beet factories worldwide
- Cost effective alternative to synthetic biocides
- Can be used in thick juice storage, prolonging storage times
- Products are water based for ease of dosing
- Safe to handle and non-corrosive to equipment
- Coproducts suitable for animal feed
- Residues are beneficial for yeast and ethanol fermentation processes

Comparison of Biocides against *Bacillus stearothermophilus*



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“Transforming your world with our natural hop solutions”

HopAid® Antifoam

Purpose

HopAid® Antifoam is used during fermentation to prevent excessive foam formation. It can be used for top and bottom fermented beers in all kinds of fermenters. Produced with deionised water and hop extract is considered food safe in both USA (GRAS) and EU.

Product Specifications

Appearance:	Creamy pale yellow emulsion
Odour:	Slight odour of hops
Solids:	< 12%
Yeast and Moulds*:	< = 10 cfu/g
TVC*:	< = 100 cfu/g
Centrifuge Test:	Pass / Fail

* Values monitored on a regular basis but not on every batch.

Composition

Ingredient	Range
Hop Extract fraction	5 – 10 %
Food grade emulsifier	0.1 – 2 %
Water	Balance

Application

HopAid® Antifoam should be dosed into cold wort. Either inline or, alternatively, dosed into the fermenter before the cold wort is transferred. This will ensure good mixing with the wort which is essential for optimum performance. Dosing into hot wort will lead to unpredictable losses in the hot trub.

Depending on the brewing recipe and fermentation regime the dose rate for most applications will lie between 5 and 50 g/hL. For a normal strength lager type a starting dose rate of 20 g/hL is recommended. However, fermentations with high levels of foam stabilizing substances such as hop acids and proteins, dark malts and higher fermentation temperatures may require higher dosing

rates. Products with high levels of adjuncts may require lower levels of HopAid® Antifoam addition. If the brewer is using a synthetic, silicone based product the dose rate can be used as an indication. In most cases HopAid® Antifoam should be dosed at 2x the concentration as the Silicone based product.

Effect of HopAid® Antifoam on the final beer

Technical studies and feedback from customers have not shown a negative impact on final beer foam, in fact some data suggest a positive one.

HopAid® Antifoam: Yeast and pH

Yeast removes the vast majority of the active components by adsorption on to the cell wall. Any remainder may be removed by filtration.

HopAid® Antifoam is incompatible with strong acids and bases.

Strong acids and strong bases will damage the antifoam, so HopAid® Antifoam should not be added to yeast directly after acid washing of the yeast. Beer pH is fine.

Trial Design:

The trial should consist of 2 initial trial fermentations, both with the same volume of wort and in tanks with the same dimensions. To the first fermentation no HopAid® Antifoam should be added (control sample) and the foam height should be monitored. Ensure that the tank is big enough to include the foam built in the control sample. The second fermentation with HopAid® Antifoam, added in the recommended starting dose rate, should use the same wort volume. To understand the required dose rate and the effects of HopAid® Antifoam, it is important to measure the following attributes if possible:

- Foam height in fermentation tank
- IBUs of the beer
- % of attenuation
- Beer foam stability

Safety

There are no known health hazards for this product. Please consult safety data sheet for full information.

Packaging

HopAid® Antifoam Antifoam is packaged in 1 kg Tetrapacks and 10 kg aluminium foils.

Transport

Transport temperatures should be maintained above 0°C to ensure the product does not freeze

Storage

Ideally store away from direct sunlight and between 5°C and 20°C if unopened. HopAid® Antifoam can be stored in the original unopened containers for up to 15 months. Do not freeze as this will cause the emulsion to collapse. If this occurs the product can be redispersed by shaking to restore its antifoam capacity. Open containers should be stored cool (+5°C) and used within 2 days.

Natural Additions Product Range

General:

The Natural Additions range of products from the Barth-Haas Group has been developed to provide an efficient and flexible means of adding hop aroma and flavour to beer.

Natural Additions products are prepared from whole cone hops by specific extraction and distillation methods with the addition of an enhanced compound of natural origin. Natural Additions products are supplied worldwide exclusively by the Barth-Haas Group and our channel partners.

Characteristics:

Natural Additions products are 100% soluble in beer and other beverages and offer an alternative means of adding different types of natural aroma. They can complement an aroma addition of traditional hop products (cones or pellets) with easier handling and reduced beer losses.

These Natural Additions products available are:

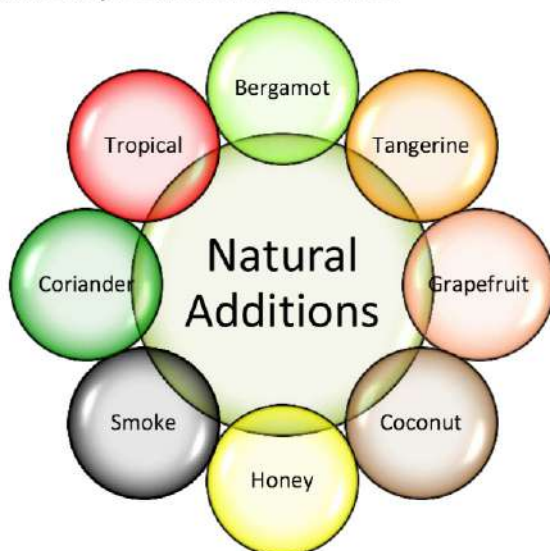


Figure 1: Examples from Natural Additions range

Product specifications:

Description:	water white solution, can be hazy
Specific Gravity (20°C):	0.750 - 1.350

Product Use:

The Natural Additions products are completely soluble in beer and are intended for addition to fined or filtered beers. The required amount of Natural Additions may be metered directly into the beer stream during transfer to bright beer tank or other appropriate vessel. The dose rate of Natural Additions per hectolitre is normally about 10 mL but may vary between 5–40 mL, according to the desired intensity of aroma and beer style.

On a large scale, Natural Additions products are used as a post fermentation addition to filtered beer, where 100% utilisation is feasible. These products may be added without prior dilution to beer either before or after the final filtration, preferably by metered injection into a turbulent beer stream during transfer. If possible, the pump should be set to dose the Natural Additions over approx. 95% of the total transfer time.

Trial Guide:

We recommend benchtop trials to determine which concentration gives the best desired effect. To get a better initial understanding for the effect of individual Natural Additions products and the required dose rate, we recommend dosing directly into a glass of beer. For more accurate results, we suggest following this up with dosing into bottles as explained below. The rate for initial tasting trials should be approximately 10 mL/hL of the Natural Additions as supplied. Natural Additions products can be dosed directly using a micropipette or syringe. For example, a 330 mL bottle, a 33 µL amount of Natural Additions gives a dose rate equivalent to 10 mL/hL. Chill the beer to normal drinking temperature. Open and introduce the required volume of Natural Additions in the headspace of the beer bottle and reclose the bottle. Invert the bottle several times to ensure mixing and chill again for at least two hours before opening and tasting.

Special properties of Natural Additions:

The Natural Additions products have the following properties:

- Natural: 100% derived from hops and another natural source by physical extraction processes.
- Fully soluble: utilisation is 100% because of full solubility in beverages.
- No negative impact on beer quality: does not increase beer haze or reduce beer foam stability.
- Easy handling: provided as a standardised solution for direct dosing.
- Light stability: free of hop (iso-)α-acids; can be used with any packaging type.
- Ideal for brand diversification: differentiate existing products or create new ones.

Packaging:

The standard package size of Natural Additions products is 1 L and 5 L aluminium flasks. Larger package units are available on request.

Storage and shelf life:

Natural Additions products are stable in unopened containers for at least 24 months between 0-20°C.

Safety:

Please refer to our SDS which can be downloaded on our website www.barthhaasgroup.com.

Labelling:

Natural Additions can be labelled in beer with >1.2% abv in Europe according to 1334/2008 as "Natural flavouring". Other possibilities: "Natural flavouring" or "natural hop flavouring with other natural flavourings" or for example "natural hop and honey flavouring"

Technical Support:

We will be pleased to offer help and advice on the use of Natural Additions products and are happy to assist with your product development. For more information on the Natural Additions product range, please contact us at

info@barthhaasgroup.com



BIJAY BAHADUR

**B.Sc. (Hons.); B.Tech. (Gold Medallist); PGDEE; FIE;
Chartered Engineer (India) PE (ECI); LMIChE; LMAFST (I)**

Introduction

Clarification of beer involves many factors from biochemical to mechanical. A bright beer is the result of good brewing techniques, an understanding of the fundamentals of clarification, a good filtration system, or a combination of all three.

During the brewing process is possible to face three different kinds of haze:

1. Permanent haze caused by bacterial contamination or by the starch conversion through the mashing process not being completed.
2. Chill haze in some cases is created by a protein polyphenol bond or by changes in temperature, appearing at cold temperatures and dissolving at warmer temperatures.
3. Yeast haze will depend on yeast strain flocculation characteristics, which will vanish during the cooling process. In wheat beer style is a favorable attribute.

A hazy beer is commonly blamed on yeast that will not settle, but that is one of several possibilities. Yeast does not stay in suspension without help.

Clarification Techniques

During the brewing process, the brewer can add fining agents to remove the number of proteins in the wort. Flocculating agent can be added at the wort kettle 10-15 minutes prior the end of boil.

Clarification through Beer Filtration

Generally, commercial breweries filter the beer by operating different types of filters currently using diatomaceous earth, sheet, and membrane filters. Likewise, separators are used, and in some cases depending on the beer style Lenticular filters are used to polish the beer.

To get an idea of the complexities involved in clarification, we will look at several factors that affect yeast flocculation, but first we will define flocculation.

Flocculation

Flocculation refers to the ability of yeast to aggregate and form large flocs and then drop out of suspension. The definition of flocculation is, "reversible, asexual, and calcium-dependent process by which cells adhere to form flocs."

It is very important to understand the basics of flocculation and what affects it because the flocculation and sedimentation process is the easiest and least expensive way to get bright beer. Flocculation also affects fermentation performance and beer flavor. Ideally, yeast will stay non-flocculent and in suspension until the desired final gravity is reached and then become flocculent and drop out of solution. As any brewer knows, yeast do not always cooperate with this concept.

Yeast strains have different levels of flocculation characteristics from non-flocculent to highly flocculent.

Non-Flocculent Cells

Non-flocculent yeast has cells that appear smooth under a scanning electron microscope and that have a negative surface charge. When these cells are close and moving slowly, they repel each other. If these cells are moving toward each other fast enough, they will overcome the repulsion and collide but will not stick together.

Flocculent Cells

Flocculent cells are cells that appear to be covered in hairs or spines under a scanning electron microscope. These cells also have a negative surface charge that causes repulsion between two cells. However, when these cells collide, they overcome the repulsion and stick together.

Lectin Hypothesis

The Lectin hypothesis is the current hypothesis that describes how yeast flocculate. This hypothesis explains flocculation as controlled by cell-wall to cell-wall interactions, specifically the binding of zymolectins to mannose residues of mannan in the cell wall of yeast cells.

Zymolectins are proteins produced in the cell and then secreted into the cell wall. Zymolectins bind to sugar molecules and require calcium ions to maintain proper configuration for binding these sugars. Zymolectins also bind to cell wall mannose residues of mannan.

Mannan consists of long and branched mannose sugar chains that are present in the cell wall. Mannan is present in the cell walls of all yeast cells. Mannan is attached to long peptide chains anchored in the cell wall.

The zymolectins and cell wall mannans basically work like Velcro. What causes the production and activation of zymolectins is not well understood. It is believed that zymolectins become active at the end of exponential growth and during the stationary phase. Most likely depletion of nutrients and increase of fermentation by-products (ethanol and pH changes) trigger production and activation of zymolectins.

Co-Flocculation

Co-flocculation can occur when a flocculent and a non-flocculent strain are used together. The combination of the two flocculation types can cause both strains to flocculate because the zymolectins of the flocculent strain bind to mannans of the non-flocculent strain. It is difficult to predict whether two strains will exhibit co-flocculation so it is always important to run small scale fermentation trials before using two strains together.

Factors That Promote Cell Aggregation & Attraction (Flocculation)

The factors promote the mechanism that makes yeast cells stick together are:

- Genetic background of the strain
- Zymolectin concentration
- Mechanical factors that increase collisions between cells and cell aggregation
- Factors that decrease repulsive electrostatic charge
- Factors that increase cell surface hydrophobicity (CSH)
- Reduction of zymolectin inhibiting sugars.
- Cell age

What Does All Mean to The Brewer?

Flocculation and clarification are complex issues and are affected by many factors. Some of these factors are beyond the brewer's control while others are well within reach. Manipulating factors that affect flocculation will have a direct impact on flavor and aroma of the finished product. A brewer must balance the benefits derived in flocculation and clarification with the effect on flavor and aroma in the finished product.

Oxygenation:

- Poor or low wort aeration can result in early and incomplete flocculation
- Adequate aeration can result in delayed and more intense flocculation
- Affects sterol and fatty acid synthesis and presumably cell surface hydrophobicity (CSH)

Temperature:

- Optimum flocculation temperature can vary between strains
- It has been found with trials of lager strains that flocculation to be optimal at 10 °C and significantly decreased below 5 °C
- Flocculation for one lager strain increased when temperature was raised from 5 °C to 25 °C
- In other research trials, flocculation was repressed at 25 °C and optimal at 5 °C
- By lowering the fermentation temperature, the CO₂ production by the yeast is diminished, causing less turbulence and will promote sedimentation
- Good record keeping will help to determine the optimum temperature range

pH:

- Flocculation is influenced by the wort pH
- Flocculation can occur in a broad range of 2.5 to 9.0
- Optimum range is 3.5 to 4.8 and will vary by strain
- Brewing strains of the NewFlo phenotype occur at a pH of 3.9 to 5.5, with a very strain-specific optimal range

Ethanol Concentration:

- Research trials show that both increases and decreases in ethanol levels can enhance flocculation
- Very strain dependent
- Too high of concentration (10%) becomes toxic to the yeast

Pitch Rate:

- Research has shown a NewFlo strain increase flocculation with gradual pitch rate increase
 - ▲ Pitch rate increased from 1 million cells/mL to 15 million cells/mL
 - ▲ Flocculation increased from 58% to 71%
- Higher pitch rates can yield populations with higher percentages of older cells

Trub:

- Influence of trub levels on flocculence varies greatly across yeast strains
- At pH levels below 4.0, electrostatic interactions take place among trub and yeast cells leading to sticky yeast beds in the production of low carbohydrate beers

Yeast Handling & Flocculation/Clarification

Pitch Rates:

Standardize pitch rates

- This will remove one factor from the equation to determine sources for changes in flocculation

Yeast Cropping/Harvesting:

- Cropping of yeast for subsequent repitching is very important for maintaining proper flocculation characteristics
- Cropping from different layers in the fermenter cone can be used to adjust and maintain flocculation characteristics
- Cropping from the middle layer of yeast in the yeast bed will select for the highest flocculation

Yeast Storage:

- Standardize storage times and temperatures
- Changes in storage temperatures can influence flocculation characteristics of some strains

Acid Washing:

- Some research shows that intensive acid washing leads to a decrease in flocculence in some strains. This is most likely due to changes in the cell wall and subsequent changes in cell surface hydrophobicity (CSH).
- Flocculation can be stressed by storage conditions and yeast acid washing before pitching.
- These changes in flocculation can carry into subsequent repitches.

Generation:

- The flocculence of a yeast strain will change with serial repitching. This is due to changes in the cell wall composition and genetic variation.
- Very strain dependent; some strains are much more stable than others.
- A new slurry should be ordered from your supplier when changes are observed.

Conclusion

Flocculation is one of the most complex and least understood mechanisms that yeast have. It is very difficult to determine exactly why a yeast strain has had a change in flocculation characteristics. Good and consistent record keeping combined with good and consistent yeast handling and brewing techniques will minimize the number of unknown factors affecting yeast.

Understanding distilled water mash ph and how to use it to achieve target mash ph."



SAURABH N. PERKAR

HEAD BREWER

B.TECH CHEMICAL ENGINEER

BREWMASTER

BROTHER BARLEY BREWING COMPANY

What is a distilled water mash ph? and why its important?

"Distilled water mash ph" as its name itself indicates is a simply ph of mash with pure distilled water. In malt lab report its indicated for base malt which is usually around 5.7 tp 5.8 and its because of most malt has a natural buffer that create a distilled water mash ph in this range.

As we know we use R.O. water for mashing process and as a brewer we pay attention to carbonate, calcium, magnesium , sulfate , chloride and sodium ion concentration. From mentioned above ions carbonate , calcium and magnesium ions lead to residual alkalinity.

Earlier we have discussed how to calculate R.A. and how to use it to alter water quality as per beer style SRM. now here distilled water mash ph is a useful parameter to consider while changing mash ph.

we can estimate mash ph with help of distilled water mash ph along with R.A. and mash thickness. so we can estimate how much salts or acid/base to use to achieve target mash ph. if we follow all steps perfectly no need to do try and error we can get exact results.

How to predict distilled water mash ph of a malt bill.

As we know mash ph is lowered by reaction between phosphate from malt and calcium and magnesium ions and will give tricalcium phosphate and give out hydrogen ion to lower ph. but in distilled water there are no ion concentration to react with phosphate from malt. so how ph is lowered in distilled water with malt ? as we have mentioned earlier malt also contribute natural buffer to balance distilled water mash ph. this is case a with base malt mostly. but in case of speciality malt ph is lowered by acidic melonoids formed during kilning process.

Malt lab reports indicate distilled water mash ph for base malt only but no for speciality malt. so how to know distilled water mash ph for speciality malts. Here specific acidity help us here and specific acidity can be calculated from EBC of that speciality malt.

now once we know distilled water mash ph of base malt and specific acidity of speciality malt few more things we need to consider like mash thickness and grist percent from overall malt bill.

How to use distilled water mash ph values to achieve target actual mash ph.

once we get know about overall distilled water mash ph of malt bill we need to note down residual alkalinity of brewing water. last time we learned how to calculate R.A.

Here distilled water mash ph , thickness of mash and R.A. helps us to estimate mash ph. here R.A. and mash ph are directly proportional to each other here. because as we know more carbonate in water means more value of R.A. and ultimately rise in mash ph. on other side more calcium and magnesium means it lower value of R.A. and results into lower mash ph.

Next time we will use example with one of many of brew where we used this method to achieve exact mash ph in detail.

Sweet Beer Brewing in India



ANKUR AGGARWAL

Owner, Arishtam

Malt is a favorite sweetener for kids in India. It is added to milk as Horlicks, Maltova, Milo, or Complan. We are used to adding this malt powder into our beverages well into adolescence. Beer by definition is जौ के बीजों को अंकुरित करके शराब बनाने के लिये फफुदने को छोड़ देना. (Essentially fermented barley malt beverages). India might be the birthplace of IPA but most Indians don't like the bitter taste of Hops. Here are a 8 alternatives for your date night:

Fruit Beer:

Mango, Jamun, pineapple, and fruit-flavored beers are awesome. They are very aromatic and pleasing to the senses.

Wheat Beer:

Also called Wit and White beer. These beers are made from malted wheat. These sweet citrus beers are the single largest selling beer for Bira and the Indian Craft beer Industry.

Citrus Beer:

Everyone remembers Corona served with a slice of lime. Using orange peels and citrus fruits in beer and reduce the hoppiness and replace the bitterness with Citrus notes. Using Nelson and Citra hops are also a good choice.

Hard Seltzer:

There is a saying amongst college students. On a date, most women would order a glass of wine, but what she actually wants is Vodka with Orange juice. Well, Seltzer is the solution. It is clear and bubbly like a soda. Full of fruit flavors and has the fl

Root Beer:

The most famous being the Ginger Ale. I also like beer made from Nannari (నన్నారి) and Opium Khus roots (खसखस). Aromatic herbs, roots, and spices can be used to make the beer really taste. The additional advantage is the cooling and medicinal properties of the herbs get incorporated in our brews. Sweet Root beer is great for summer brewing.

Milk stout:

Malt and Lactose (Milk Sugar), do I need to explain more. While the rest of the world likes Milkshake IPA, Indian love for milk stout cannot be under-rated.

Braggot: Honey Mead Beer:

Adding a teaspoon of honey just before bottling (as a priming sugar) is one of the simplest ways to make honey mead beer. For more flavorful honey, considering adding 50ml/Liter of unpasteurized honey to your fermenter after the 5th day (dry hopping)

Gruit Beer:

India is a land of spices and unique flavors. A lot of interesting beers can be made from common kitchen spices. One of my favorite is the Tulsi (तुलसी) Basil Honey Beer. Since hops are not used, the gruit beer is pleasantly sweeter on the palate and can be gulped in greater quantity.

<https://www.arishtam.com/sweet-beer-india/home-brew-tutorials/>

Wine Etiquettes



MAMTA BHARDWAJA

Types of wine glasses

There are hundreds of styles of wine glasses for different types and styles of wine.

Choosing the right wine glass is the most important aspect of a good wine tasting experience. It is not rocket science.

When you pour a great wine into an ordinary glass the wine turns ordinary. It is quite frequent in restaurants but sometimes it happens in wineries and in public tastings also. When wine is served in too small or too thick or colored or stained glass, you won't be able to get the true flavors of wine.

If you want to get all the flavors of every wine you test whether it is cheap or expensive, you should invest in good stemware. It is always not too expensive to be good.

You can do a simple experiment.

Take one bottle of white and one bottle of red wine of your choice. Take four or five different types of wine glasses. A big bowl-shaped glass, small glass, flute, or normal tumbler whichever you have. Then pour white wine into all glasses. Then take a sip from every glass and experience it. The wine in each glass will taste differently. Repeat the same for red wine. You will experience the same thing.

The use of the correct wine glass enhances the drinking experience.

There are specific wine glasses for every major varietal and region in the world and they do work. These are required for formal wine tasting or dinner parties. It is not necessary to buy them all. Choose a set of wine glasses that matches your wine buying and drinking habit.

For normal collection, there are four major types of wine glasses.

Red wine

Red wines are best served in large-sized rounder glasses. This will allow the air to come into contact with an enlarged wine surface and develop the aromas and flavors.

White and Rose wines

White and rose wines require medium-sized glasses so that fresh, fruity characteristics are gathered and directed towards the top of the glass.

Sparkling wine

Sparkling wines are served in flute glasses. This shape enhances the shape of bubbles and thus the wine's aroma allowing them to travel to larger areas of the wine before bursting at the top of the glass. For this reason, the saucer-shaped glasses are completely inappropriate because the bubbles are very quickly lost.

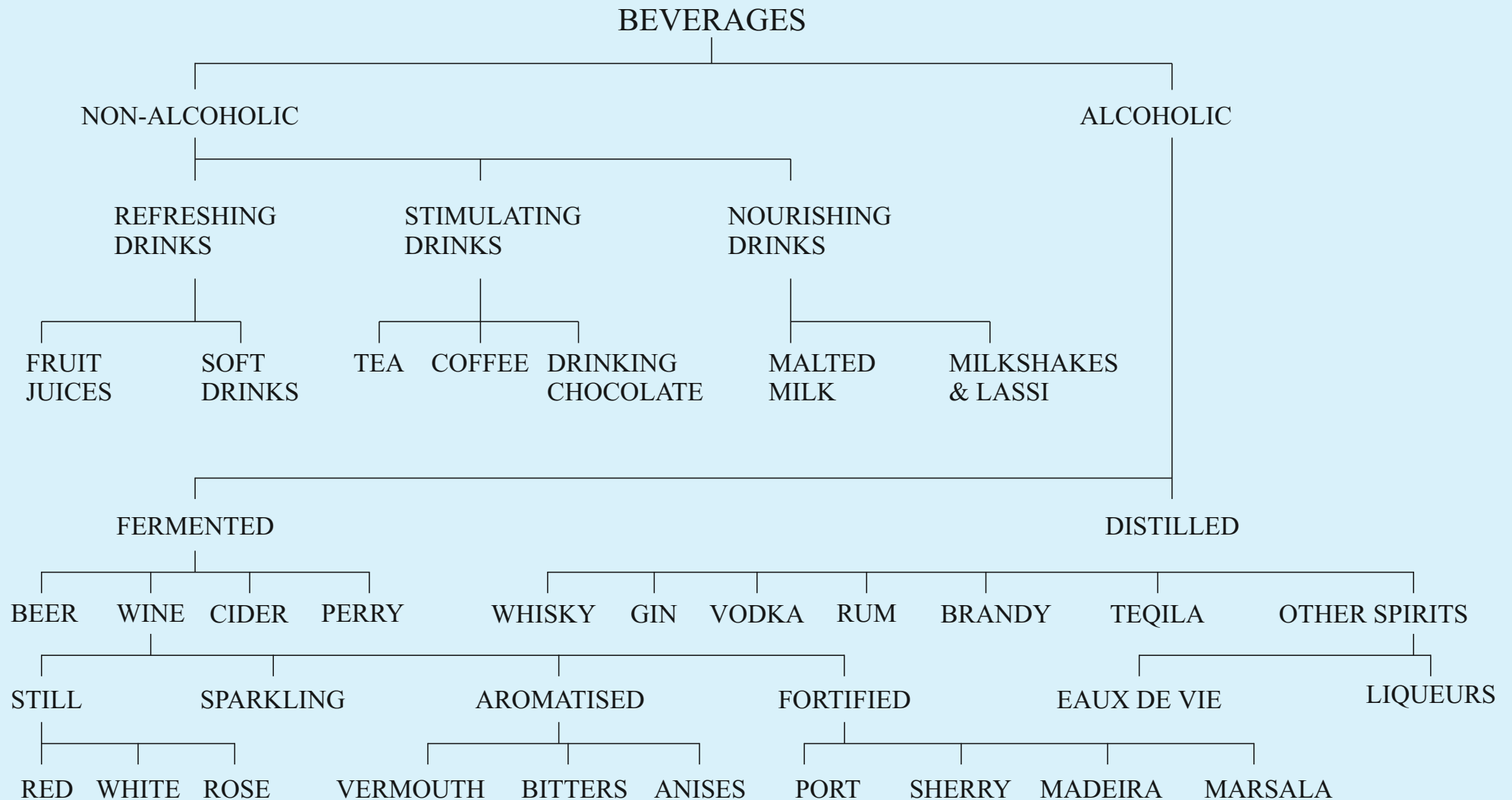
Fortified wine

Fortified wines should be served in small wine glasses to emphasize the fruit characteristics rather than the alcohol.

Always avoid colored glasses even if just the stem is tinted. Otherwise, you won't be able to see the original color of the wine.

Cheers!!!

CLASSIFICATION OF BEVERAGES



WINE REPORT



KANCHAN SINGH

Chapter Head - South Delhi, India

Apex Wine Club India

1 April 2022, Friday

According to latest reports, the total area under the cultivation of grape for wine will increase by 1,000 acre on account of an increase in wine sales across the country. Wineries in the country are expecting 20 per cent year-on-year sales growth.

Currently, around 6,000 acre is under wine grape cultivation in Nashik. A Nashik-based winery, which is the largest in the country, plans to add 700 acre, in addition to the 3,000 it has under wine grape plantation. Other small wineries also plan to add 300 acre to the area under wine grape plantation. According to assessment, the grape yield is around 8 tonne per acre.

In the present scenario, annual wine sales amount to approximately 1.25 crore litre. Besides, the total area under grape plantation in Maharashtra is 3.5 lakh acre, which includes 1.75 lakh acre in Nashik. Of this, 9,000 acre is for wine grape cultivation all over Maharashtra, which includes 6,000 acre in Nashik.

There are 95 wineries in India, of which 77 are in Maharashtra, and 39 are in Nashik. Maharashtra contributes around 90 per cent of the grape wine production of India, and Nashik accounts for 80 per cent of the total production.



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