PREPARATION OF FOOD BEVERAGES AND PRODUCTS

Dissertation submitted in partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE

IN

BIOTECHNOLOGY

Submitted By

SHIVANI

(Roll no. 197815)

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DEPT. OF BIOTECHNOLOGY AND BIOINFORMATICS

HP-173234, INDIA.

May 2021

Minocha Industries

WONDER WYNE

Minchy's®

Training Certificate

This is to certify that Miss **Shivani** D/o Mr. **Raman Chand** student of **Biotechnology** has undertaken industrial Training for **75 days** from **17/02/2021 To 30/04/2021** Including Sundays.

During the course of her trainings, she had an opportunity to work in various departments in our factory including the beverage division, pickle division and the wine division. During the course of her training, the conduct of the student was **Very Good** and we wish the student all the very Best in the future.

Proprietor,

Signature

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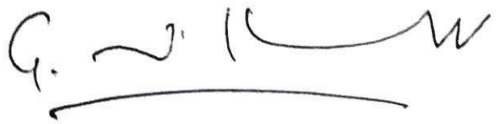
SUPERVISOR'S CERTIFICATE

This is to certify that the work reported in the Msc. dissertation entitled **"PREPARATION OF FOOD BEVERAGES AND PRODUCTS"**, submitted by Shivani (197815) at Jaypee University of Information Technology, Waknaghat, India, is a bonafide record of her original work carried out under my supervision. This work has not been submitted elsewhere for any other degree or diploma.



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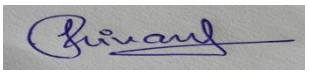
DECLARATION

I hereby declare that the work reported in the Msc. dissertation entitled **"PREPARATION OF FOOD BEVERAGES AND PRODUCTS"** submitted at Jaypee University of Information Technology, Waknaghat, India, is an authentic record of my work carried out under the supervision of Mr. Girish Minocha (Minchy's) and Dr. Garlapati Vijay Kumar, Dept. of Biotechnology and Bioinformatics, JUIT, Waknaghat, HP-173234, India. I have not submitted this work elsewhere for any other degree or diploma.



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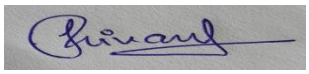
ACKNOWLEDGEMENTS

I would like to express my gratitude to everyone who helped me to prepare and complete my M.sc. dissertation entitled "PREPARATION OF FOOD BEVERAGES AND PRODUCTS". I would also like to seize the opportunity to acknowledge my deep sense of gratitude towards all those who extended their kind help in fulfilling this endeavor. Along with that, I would like to express my deep sense of gratitude to my mentor, Philosopher and guide **Dr. Garlapati Vijay Kumar**, Department of Bioinformatics and Biotechnology, Jaypee University, who conceived and shaped the research work and provided adept guidance. His deep insight into science and constant input of new ideas helped me make significant improvement in my work. It was his valuable discussions and endeavor through which I learnt a lot. His constant encouragement and confidence imbibing attitude has always been a moral support to me.

I would also like to appreciate the guidance I received from **Mr. Girish Minocha** (CEO Minchy's Food Products), **Mr. Uday Miocha** (Managing Director), **Mr. Virender** (General Manager), **Mr. Shrikant Chandel** (Assistant Manager), **Dr. Sudhir Syal** (HoD), **Dr. Anil Kant Thakur** (Coordinator of M.Sc. Biotechnology), Department of Bioinformatics and Biotechnology, Jaypee University and my family and friend (**Akshay Dhadwal**) for their endeavoring support, consistent help and encouragement which pushed me to achieve this goal.



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ABSTRACT

In the current scenario, due to the increasing population, nutrient deficiency among people is becoming a significant concern. Thus, consuming a diet rich in fruits and vegetables can increase nutrients, such as carbohydrates, essential vitamins, and minerals. Product manufactured at Minchy's such as juices, crushes, and other ready to serve (RTS) beverages (fruits used-mango, apple, kiwi, strawberry, grapes, rhododendron, pineapple, orange, guava, litchi, plum, apricot, peach, etc.) and products are considered similar to the health drinks and are a good source of nutrients. Environmentally sustainable manufacturing methods are being used, and an efficient manner is also being used to dispose of waste released by industry. Manual fermentors are being used for the fermentation of wines with the help of yeast and the addition of Diammonium Phosphate (DAP) (9 types of wines are manufactured-Peach wine, plum wine, pear wine, apple wine, apricot wine, kiwi wine, strawberry wine, grape wine, rhododendron wine) and cider kick. Filters are being used for filtration purposes, such as Diatomaceous Earth filter (DE), Supradisc second module, profile star, onoclear, and ono pure having different cartridges. All cooking of food products within the factory is done with the help of steam, in the absence of direct open flames, and thus the soot is being eliminated. Every possible effort is made to ensure that no occupational health-related hazards have to be involved during production. Making food, beverages, and products daily will help keep an individual away from doctor and health ailments.

Key words: ready to serve (RTS), filtration, Diammonium Phosphate (DAP), Diatomasious Earth (DE)

Chapter 1

INTRODUCTION

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Minocha Industries also known as Minchy's Food Products was incorporated in the year 1993 is Shimla based firm one of the renowned enterprises of the industry indulged in manufacturing and supplying finest quality Taste Enhancers. They manufacture Sauces and Vinegars, Juices and RTS(ready to serve) Beverages, Squashes and Crushes, Wild Apricot Kernel Oil etc.

These taste supplements are processed at their processing unit by using fresh and pure raw vegetarian ingredients obtained from the most trusted and well known fruit suppliers of the country. Their food products are extremely admired and accepted by the national consumers for their perfect ingredients, longer shelf life, less fat and nice smell and are exceedingly applauded in the across country market. To manufacture Food Products that can meet the specifications internationally and conform to standards given by FPO and PFA, as well as according to the recent FSSAI i.e. the Food Standards and Safety Act of India, their state-of-the-art laboratory is being fully equipped.

Minchy's provides imperishable living opportunities for women and also to other villagers from its proximity. Environmentally sustainable manufacturing methods are being used and efficient manner is also being used for the disposal of waste released by industry. Every possible effort is done to make sure that no occupational health related hazards has to be involved during production. In order to ensure sustainability Minchy's is also trying it's best to use the local produce for manufacturing products. The company is subtle to the cultural sensibilities of their personnel and consumers. To promote a good work culture within Minchy's every effort is made. Maintaining good quality of the product is another primary concern. Minchy's realized that only by not compromising with the quality of its manufacture their good and imperishable relationships with their clients can be maintained for long term. Minchy's products such as juices and concentrates are thus considered similar to the health drinks and enjoyed the trust of their consumers. Other

manufactured products such as pickles cater more for the sensibilities of the taste. Hence the Minchy's group is related to the society in large amount through their manufacture and caters to every dimension for maintaining and achieving imperishability and sustainability.

With the direction of adroit professionals and support of highly reputed suppliers of raw material, the firm is able to present their quality approved taste supplements in national market. To meet with the rapid growing demands of all residential clientele and their vendors they have sectioned their infrastructural activities in several units like testing, processing, RM store, obtainments, sales & marketing and administration. Acquisition of the fresh fruits and other material for these supplements is always done under the guidance of their food engineers. Moreover to this, their clients can avail these fruit products at nominal costs.Under the quality management skills and guidance of Mr. Girish Minocha they have acquired a glorious position across the national market.

Basic Information about industry

- Nature of the Business — Manufacturer
- Additional Business — Distributor
  - Supplier
  - Service Provider
  - Trader
  - Retailer
- Company CEO — Mr. GIRISH MINOCHA
- Total Employees in numbers — 101 to 500 People
- Established in the year — 1993
- Legal Status of factory — Partnership Firm
- Annual Turnover — Rs. 5 - 10 Crore
- GST No. — 02AAIFM2790H1ZD

Advantage of this firm

- Product Line is large
- Production Capacity is large
- Profile is Statutory
- Minchy's Food Products are Shimla based firm and is highly involved in providing a vast array of taste supplements. Their large distributive network makes their products known to all persons of the country. All their supplements follow preset standards of quality during the production and seal proof packaging. Customers have shown their trust on all of their fruit products. Their convenient payment modes make their consumers rely on them.

- Below given features can summarize their success in this competitive market:
- Products are Hygienic
- Business practices are ethical
- Prices of products are reasonable
- Packaging is customized
- Product array is of high grade
- Distribution network is huge

Quality Assurance

Due to trustworthy source of fresh fruits and other raw material and quality centric inclination of their enterprise, they are able to nurture the segregate requirements of their precious patrons present in across country market. All the fruits used are fresh and quality tested by following several tests conducted by their food inspectors. Their food experts grind and process all taste supplements in adherence to global quality norms. Furthermore, their fruit products are examined by their food engineers and microbiologists on diverse array of quality levels.

Terms & Conditions

- Minchy's realizes that their customers trust in their manufacture is directly proportionate to the consistency of the quality they are offering them. Nowadays due to the situations of increasing pollution and more possibility of contamination of the products, they believe that it is their duty to provide their client’s the purest form of finished products, which are being prepared from the best nature could provide.
- Many measures are being taken by them to make sure that their goals of purity have been fulfilled. In an extreme hygienic conditions the manufacturing of food products is undertaken, in a 100% microbe and dust free environment of the industry.
- The organization is itself located in the premises of Himalayas, where the atmosphere is mostly free from unwanted dust and pollution. All cooking within the factory is done with the help of steam, in the absence of direct open flames and thus the elimination of soot is done completely.
- They want their client’s to be 100 % assured that they are receiving nature's pure product, without any compromises.

Food products that are being manufactured at Minchy's

Pickles

Mango pickle, mushroom pickle, carrot pickle, cauliflower pickle, green chilly pickle, bamboo pickle, jimikand pickle, garlic pickle, lime pickle, karela pickle, garlic gandiyali pickle.

Chutney's

Mango chutney, rhododendron chutney, tomato chutney, apple chutney, amla chutney.

Jam's

Pineapple jam, mixed fruit jam, apricot jam, orange jam, apple jam, plum jam, strawberry jam, kiwi jam.

Fruit drinks

Guava fruit drink, orange fruit drink, litchi fruit drink, strawberry fruit drink, pineapple fruit drink, natural apple juice, plum juice, kiwi juice.

Crush

Mango crush, litchi crush, strawberry crush, kiwi crush, guava crush

Wine

Peach wine, plum wine, pear wine, apple wine, apricot wine, kiwi wine, strawberry wine, grape wine, rhododendron wine.

Cider kick

Apple cider vinegar

Synthetic vinegar

Sauce

Hot red chili sauce, hot green chili sauce, soya sauce, tomkin sauce.

Chapter 2

REVIEW OF LITERATURE

==========

2.1 Impact of Diammonium Phosphate addition on yeast in fermentation of wine

The key component of wine must is nitrogen, that provides a necessary nutrient for the growth of yeast that is important for the whole fermentation process and to manufacture wine with advisable flavor characteristics. The time needed for completing of the fermentation and also the rate of fermentation were mostly captivated with nitrogen accessibility (Vilanova, Pretorius and Henschke, 2015; Lea, 2004). However, the nitrogen content present in wine is being varied, and sometimes limiting, and is being affected by several viticulturally-related factors (Vilanova, Pretorius and Henschke, no date).

One policy utilized by winemakers for the limited-nitrogen musts is that the nitrogen supplements addition, as an inorganic N, typically in the form of diammonium phosphate (DAP) (Vilanova, Pretorius and Henschke, no date, Lea, 2004). Assimilation Of this species leads to altered metabolite production as it involves multiple metabolic pathways. Therefore, the non-volatile wine composition can be dramatically by DAP addition, like glycerol and organic acids, also as volatile metabolite composition, like esters, alcohols, and volatile fatty acids and sulfur compounds. Therefore, applicable usages of DAP improves the sensory properties, however the advance in quality also depends on different factors as well as yeast strain, initial must N content and amount of addition of DAP (Vilanova, Pretorius and Henschke,2015).

2.2 Role of Diatomaceous Earth in filtration of wines

The method through which particles are being separated from a fluid by flowing the fluid through a permeable material is known as filtration. The suspended solids, as well as some semi-colloids, from liquids are being removed by the filtration. As a layer of permeable cake is being built on the screen of filters, the liquid preferably passes through it and solids stays. This ideal scenario is being approached with large, compact particles. However, in practice, the finer suspended solids usually passes through the cake with only larger suspended solids retaining on the screen of filters. At the ending of the process the liquid flow gets reduced eventually to an unviable level and the solids also sticks with the filter screen, creating it very troublesome to wash. In most organic liquid and food products filtrations these difficulties occur.

Diatomaceous earth contains the siliceous remains of innumerous diatoms, microscopic unicellular aquatic plants closely associated with the brown algae. DE is a chalky sedimentary material, composed of the skeletal remains of prehistoric water microorganisms (single-celled algae), referred to as diatoms. They're characterized by size ranging from under 5 to over 100 mm and porous structures with the openings as tiny as 0.1 mm in diameter. The diatom skeletons and housings are being mined, grounded up and also thermally treated in order to furnish a powder composed of microscopic solid particles, which only occupies 15% of the total filtration volume. DE can quickly remove small suspended particles with the help and combination of tiny pore sizes, large specific surface area, firmness of the particles and high porosity from the liquid mediums at high filtration rates (Granulations *et al.*, 2011).

2.2.1 Kieselguhr

Filter aids materials which are used frequently are kieselguhr (which is also called as diatomaceous earth- DE) and perlite, etc. How the sizes of particle of these two filter aid materials are distributed considerably influences the filtration process (Granulations *et al.*, 2011). These materials consists of fossils or skeletons of microscopic salt or freshwater life which are known as diatoms. Once they die they get sinked and turns into deposits that are being mined, processed further and size-classified to produce kieselguhr of varied grades (Freeman and Mckechnie, 2003).

Though for wine filtration the filter aid used most commonly is Kieselguhr or diatomaceous. However, latterly a lot of criticism has been received for the usage of kieselguhr. Some of the reasons behind this criticism are disposal cost, resources limitation and related hazards to health because of diatomite powder (Braun *et al.*, 2011).

The disadvantages of kieselguhr powder are that the crystalline components present in it are the reason for the health hazard (by dust inhalation) associated with its dry form being delivered to the factory and that just because it is non-biodegradable its disposal to landfill sites is also expensive. When respiring these crystalline particles are tiny enough and enters the pulmonary alveoli easily. Which can further lead to silicosis or to bronchial carcinoma (lung cancer). Due to this reason, by the International Agency for Research on Cancer (IARC)17 kieselguhr (powder) is being classified into Group 1 (an agent which is carcinogenic to humans) (Braun *et al.*, 2011; Freeman and Mckechnie, 2003).

2.3 Enzymes Application in Fruit Juice Technology

Due to the increasing demand for enzymes in various industries the major interested research topic nowadays is the enzymes which are suitable for commercial usage and their cost effective manufacturing techniques (Phytomed *et al.*, 2017).

The reason why enzymes are being used in the production of fruit juice are

(a) for the treatment of mash: to increase yield of juice and ameliorate removal of other fruit components like colour and flavour;

(b) for the treatment of juice: to improve clarification, filtration and stabilization.

To produce pulps, turbid or clear juices and their concentrates by using raw materials including apples, stone-fruits, grapes, citrus fruits and vegetables, Mash treatment technology is described for using pectinases in combination with cellulases and hemicellulases. Clarification technology which uses pectinases in combination with amylases, proteinases and several other supportive enzymes is being explained-from reduction of viscosity of the stable turbid juices, and through the balancing of clarified juices to avoid the formation of haze and depository in the finished products.

The only enzymes used in fruit juice technology at Minchy's were Pectinase and Amylase

2.3.1 Pectinase

Some of the first used enzymes in homes were pectinase. For the manufacturing of wines and fruit juices their commercial application was first observed in 1930. These enzymes primarily are the reason for the breakdown of the long chained and complex molecules present in plant tissues called pectin (present as structural polysaccharides in the middle lamella and in the primary call walls of young plant cells) into the simpler molecules such as galacturonic acids. Nowadays Pectinases are fundamental part of fruit juice industry as well as posses varied biotechnological usages. Bringing down the cloudiness and bitterness of fruit juices is well established by the role of acidic pectinases. To improve the juice yield the commercial pectinase enzyme manufacturing derived from *Aspergillus niger* is widely used in the fruit juice processing industry (Zhang, Woodams and Hang, 2011).

2.3.2 Amylase

The microbial manufacturing of amylase is considered to be more effective than the other sources because this technique is easy, consistent, fast and also cost effective, which can be further modified to produce enzymes of desired characteristics. In commercial applications around 25 % of enzyme trade is being dominated by amylases especially for its property of hydrolyzing starch in varied industries (Phytomed *et al.*, 2017).

The juice has thick and sticky consistency because of the presence of Pectin in the skin or rind of the apple (Padma *et al.*, 2017). During apple juice processing problem is being created by starch as it complicates process of filtration and results in the cloudiness. Amylase being a starch degrading enzyme breaks down starch into the smaller units known as amylose and amylopectin and helps in prevention of haze formation post bottling. Therefore, to achieve better clarification and to improve the yield and clarification of apple juice the amylase can be used (Padma *et al.*, 2017; Phytomed *et al.*, 2017).

2.4 Why Pectin is being used in Jam manufacturing

Commonly pectin is being used as gelling, thickening and stabilizing agents in the foods and to some amount also in pharmaceuticals. To construct the desired texture of products pectin is mostly used which results in managing the moisture or water content in the product. Historically pectin was being used in foods and food related preparations, like jam and jellies just because it possesses thickening and jelling properties. Pectin has been reported as very well authorized and safe among different food additives, thus it is grouped and acknowledge in the “Acceptable Daily Intake (ADI) levels of “not specified" products by the FAO/WHO Joint Expert Committee on Food Additives (JECFA) (Siddiqui *et al.*, 2015).

2.5 Xanthan Gum used as a thickner agent in RTS beverages and sauces

Xanthan gum is included in the most important food-grade, which have a variety of applications in development of food products. It is used as stabilizers, thickeners and consistency providers. Re-examination of the xanthan gum as a additive of food is done by European Food Safety Authority in 2017. No safety concerns are being associated with the refined exposure evaluation of xanthan gum as an additive of food for the average population. As a result there are no concerns associated with the xanthan gum addition in beverages in terms of security and safety of the product. However, as xanthan gum is not present naturally in fruits and vegetables therefore fruit and vegetable juices which are thickened by it would be not pure “natural” any more (Gössinger *et al.*, 2018).

Addition of xanthan gum in ready to serve beverage can help in achieving very good results, as at low shear rate it possesses very high viscosity, because of its unique rigid rod-like conformation and the high molecular weight, which can also be the reason behind the high shear thinning characteristics of beverages that are thickened with xanthan gum.

Viscosity as well as turbidity can be increased significantly by xanthan gum addition. Colour components are being effected differently. Therefore for apple juice xanthan gum addition is not suggested thus the apple juice manufactured at Minchy's is kept as it and remains natural. The quality can never be improved and consumption of fruit juices can never be increased just by the xanthan gum s. [13(Gösssinger *et al.*, 2018)]

OBJECTIVES

- Preparation of Jams
- Preparation of Wines
- Preparation of Cider kick and apple cider vinegar
- Preparation of Juices, crushes and squashes
- Preparation of blacked ice tea
- Preparation of Tomkin Sauce

Chapter 3

MATERIALS AND METHODS

==========

3.1 Jam making(100kg lot)

- At first 900 gm of pectin is weighed and then mixed with 15 L of water.
- Then in the boiler add 25 kg of pulp and 70 kg of sugar
- Start the boiler once the added material starts boiling add pectin to it.
- Add 10gm of sodium benzoate
- 550gm citric acid
- 120 ml of flavour
- The TSS shall be 69-70

3.2Wine making

- Starting from initial stage
- In 1000 liter of tank 100 kg of pulp is being added
- 250 kg of sugar (both the sugar and the pulp is mixed in the boiler then transferred to the tank)
- 800 gm of DAP (diammonium phosphate) is being added prior to fermentation or during the early stationary growth phase of yeast
- Total soluble solids content (TSS) is being measured at this stage by refractometer and it should be 23 at the beginning(sugar content of wine) and at the end it will be around 7-8.
- 200gm of yeast is added after measurement of TSS
- Fermentation time period 30-40 days.

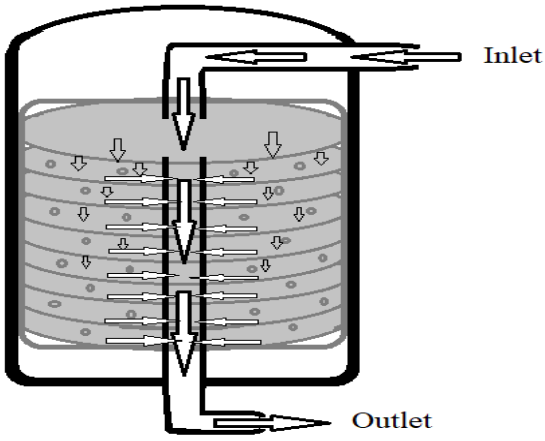
3.2.1Filtration process of wine

- The process by which suspended particles are being separated from a fluid by allowing the fluid to pass through a permeable material is known as filtration.
- Liquid and particles that are small enough to fit through these holes are allowed to pass through; particles which are too large get held back and thus are effectively removed from the liquid.
- After filtration the wine is being filled in the glass bottles and at last sealed by capping.

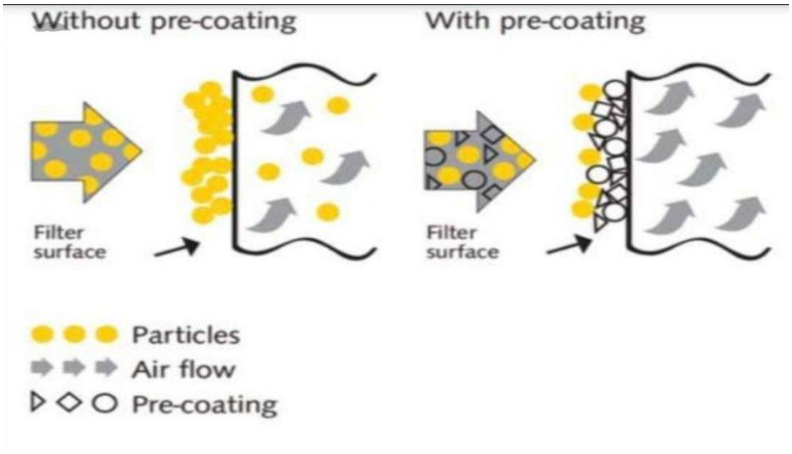
Filtration steps

3.2.1.a Primary/ Pre- filtration (DE filtration/ diatomaceous earth filtration/ Kieselguhr filteration)

- The wine is cloudy but translucent. Tartaric acid crystals(wine diamonds: crystal deposits that occur in wine when potassium & tartaric acid binds together to form crystals) as well as large particles in suspension have been removed.
- Advantage of kieselguhr filtration is its ability to keep the surface of the filter cake relatively permeable, which is important for increasing the capacity of the filtration cycle.
- DE/ Kieselguhr agent is being used for coating filter surface.
- It creates a complex matrix with high porosity
- The combination of small pore sizes, large specific surface area, firmness of the particles and high porosity allow DE to efficiently remove tiny particles from liquid mediums at high filtration rates.



Diatomaceous earth filtration



3.2.1.b Polishing/second filtration (Supradisc second modules)

- The wine is cleaner, however still has light haze. A cartridge of 3micrometer is suggested to use.
- Packaging sheet-based depth filter technology have dirt holding capacity and filtration performance.
- the filtration effect is based on a combination of surface, depth and adsorptive filteration.
- Selected combination of cellulose & different types of filtration aids in the filter matrix results in highly porous structure, which achieves effective filtration.
- Gives shine/polishing effect to the wine

Supradisc second moduole

3.2.1.c Final/3rd filtration (profile star)

- Cartridges are pleated depth filters designed for high particle removal efficiency.
- Polypropylene filter construction with no adhesive of surfactants.
- The wine is clear and bright.
- Cartridge of 1.5 micrometer is used
- At this stage reduction in yeast is seen

Profile star

3.2.1.d Sterile filtration

- The wine is clear, bright and yeast retained.
- A final membrane cartridge (onoclear) of 0.65 micrometer for red wine(rhododendron wine, strawberry wine, plum wine, grape wine) is used
- And for white wines (peach wine, apricot wine, kiwi wine, pear wine, apple wine) a final membrane cartridge of 0.45 micrometer (onopure) is used
- It stops the color pigments (0.5 micrometer in size)

3.3 Cider kick

- New lot of cider kick (2000 liter of fermentor)
- 300 kg of sugar
- 500 gm of citric acid
- 100 kg of apple concentration
- 1.5 kg of DAP (diammonium phosphate)
- 180 gm of yeast dilute in 2L
- Starting TSS will be 18 at the end of fermentation it will be around 5-6
- Fermentation period of around 20 days
- Once its ready it is being filtered and after filtration before filling into bottles(cold water tank temperature should be around 2 to 5 degree celcius)
- Green apple flavor is added 200 ml in 2000 L
- KMS(potassium metabisulphate) 600 gm
- Apple aroma 400ml

3.4 Apple cider vinegar

- ACV is made by fermenting apple juice. The sugar in apple juice is being converted acetic acid (vinegar) with the help of mother or scoby (symbiotic culture of bacteria and yeast).
- Approximately 2 months time period is required to make apple cider vinegar.
- When the lot is prepared the acidity must be 4-4.2


Mother/ scooby

3.5 Fruit juice/ RTS Beverages

- It's a ready to serve beverage made from liquid squeezed from fruits by extracting or pressing of the natural liquid contained within the fruit.
- flavored with concentrate or other biological food sources.

<u>The processing method of juices are</u>

- Food source is being washed and sorted out
- extraction of juice
- Straining, filtration and clarification
- Blending pasteurization
- Filling, sealing and sterilization
- Cooling, labeling and packing

3.5.1Apple natural juice

Apple Juice

- Fresh apples are being crushed and juice is removed
- Juice is kept over night as it is(24 hrs)
- Juice is boiled at 40 to 50 Degree celcius next morning
- Enzymes are being added (5ml each,Pectinase and amylase)
- Boil again at 80 to 85 degree
- 250-500 ml apple aroma is added
- At last juice is packed in bottles.

3.5.2 Kiwi juice

- Kiwi pulp is added in the tub already containing invert sugar(150 kg) and mixed properly.
- Then stored in the storage tank.
- For making new lot the stored pulp(120-150 kg) is heated to 80-85 degree celcius
- Then these things are being added
- Xanthan gum(300gm), pectin(300gm) & citric acid(1800gm)
- ascorbic acid(100gm) & potassium sorbate(200gm)
- Narda mist(300-400ml)
- [mixed thoroughly]
- At last add kiwi Flavor(350ml) & Color(15gm) and
- Juice is packed in bottles and pasteurized for20 min

3.6Squash

Squash is a non-alcoholic concentrated syrup used in beverage making. It is usually fruit-flavoured, made from fruit juice, water, and sugar or a sugar substitute.

3.6.1Mango squash

- Invert sugar 70kg
- Mango pulp 25kg
- Ctric acid 1400gm
- KMS 900gm
- Narda mist 200ml
- Mango flavour3212 150ml
- Colour (sunset yellow) 15gm

3.6.2 Lemon squash

- Invert sugar 70kg
- lemon pulp 25kg
- Ctric acid 500gm
- KMS 900gm
- Narda mist 200ml
- lemon flavour 250ml

Working Environment of Squash Making

3.7Crushes

To make juice crush, whole fruits are thoroughly washed, scrubbed, and crushed or blended to produce a pulp. Most of the water content is then extracted and evaporated.

3.7.1 Apple crush

- Invert sugar 180kg
- Apple juice 25ltr
- Citric acid 3300gm
- Ascorbic acid 100gm
- Color 5ml
- Aroma flavor 1ltr
- Apple green flavor 150ml
- KMS 180gm
- Dry sugar 50kg

3.7.2 Litchi crush

- Invert sugar 180kg
- Dry sugar 50kg
- Litchi pulp 60kg
- Liquid glucose 20kg
- Xanthagum 250 gm
- Citric acid 3300gm
- KMS 300gm
- Ascorbic acid 100gm
- Narda mist 500 ml
- Rose white flavor 140 ml
- Litchi flavor 240 ml

3.8Peach Black iced tea

- lot200 kg lot
- Caramel color: 5 ml
- Invert sugar: 22.500 kg
- Tea: 600gm
- Citric acid: 260gm
- Potassium sorbate: 40gm
- Lemon juice conc. 40gm
- Flavour quantity 100gm
- Final Brix 9

3.9 Preparation of Tomkin Sauce

Tokin sauce is a continental sauce made from pulp of carrots and apple

- Firstly Apple pulp & carrot pulp is added in a steaming kettle
- Then add 12 kg of salt in pulp
- After adding salt add 110 kg of sugar
- Add 75ml spice oleoresin, 40 ml capsicum oleoresin and 3.5 lt paprika oleoresin
- Mix the ingredient finely
- Then add xanthium gum 650gm
- When xanthium gum is added add 150 gm sodium benzoate
- After sodium benzoate add 2 kg corn starch
- Add each 375 gm of onion and garlic powder
- At last add potato powder and mix all the ingredient and left for 15 to 20 min in kettle.

Packing and Labelling of Tomkin Sauce

Chapter 4

CONCLUSIONS

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Major points that need to be considered while making the above preparations are as follows

- CO_2 flushing should be properly done in wine bottles before filling grape wine so as to avoid contamination.
- Filter pads and cartridges used in wine filtration should be cleaned properly to avoid clogging of filters thus resulting in cloudiness of wines and cider kick
- Filled bottles should be screened properly before there dispatch
- Sealing of these products should be checked properly so as to avoid contamination or leakage during transportation
- Total soluble solids content (TSS) should not be exceeded from the recommended amounts
- kieselguhr (powder) used for filteration is an agent that is carcinogenic to humans if inhaled(dust inhalation) in its dry form; thus while using it the face should be covered.
- The tea used in peach blacked iced tea should only be exposed to hot water for 25-30 seconds.

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