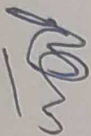


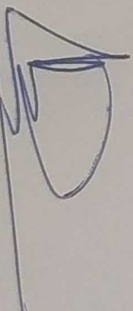
DEPARTMENT OF CHEMISTRY

Onsite Programme 2019-2020

SL. NO	TITLE OF THE LINKAGE	NAME OF THE PARTNERING INSTITUTION/INDUSTRY/RESEARCH LAB WITH CONSTANT DETAILS	YEAR OF COMMENCEMENT	DURATION (FROM-TO)	NATURE OF LINKAGE	LINK OF RELEVANT DOCUMENT
1	Onsite Program	Rico Winery Private Limited Vijayapur-Solapur Highway, Kanal Post Vijayapur.	2019	13/8/2019 to 16/8/2019	Wine Analysis training	Attached



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Dept. of Chemistry
SB Arts & KCP Sc. College,
Vijayapur.



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S.B.Arts & K.C.P. Science College,
Vijayapur.



Principal,
S.B. Arts and KCP Science College
VIJAYAPUR

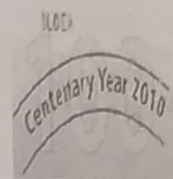


**B.L.D.E.ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE VIJAYAPUR
ACCREDITED at 'A' Grade in 3rd Cycle by NAAC**

Phone: (08352) – 261766, (08352) 262770 Extn. 2223, 2224

Fax: 08352 – 261766 E-mail: bldeasbkcp@gmail.com

Web: www.bldeasbkcp.org



REF. / :

398/2019-20

Date /:

13/8/2019

To,

Rico Winery Private Limited

Vijayapur –Sholapur Highway,

Kanal Post

Vijayapur 586119, Karnataka, India.

Sub; Regarding visit to your Factory.

Respected Sir,

I am writing this letter to seek your permission for the visit at your industry based in Sholapur Road Kanal post on the 13th of August. I would like to share that we have planned this industry visit for our B.Sc I Chemistry students in order to give them an insight about the way things work in the real life scenario.

We, about 15 students in our college, intend visiting your Wine factory to see its working. Our two teachers will accompany us.

I request you to kindly give us permission to visit your factory. You will appreciate the need for this visit and grant us the permission

Yours faithfully,

Head

Dept. of Chemistry
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IQAC, Co-ordinatôr
S.B.Arts & K.C.P.Science College,
Vijayapur.

B.L.D.E.A's

S.B.Arts and K.C.P.Science College, Vijayapur

Department of Chemistry

Report

B.Sc Sem I Chemistry

Onsite training

Wine Production and Analysis

Rico Winery

Sholapur Road, Vijayapur

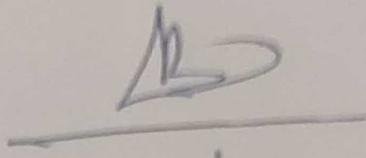
13th Aug to 16th Aug 2019

NOTICE

All the students of Onsite training are hereby requested to attend training on Saturday 10th, Aug 2019 in Rico wine factory NH 4 Sholapur Road.



HOD Head
Dept. of Chemistry
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Principal,
S.B.Arts & K.C.P.Sc. College,
Bijapur

Index

1. Wine Production
2. Analysis of wine

Introduction

North Karnataka broadly comprises of the districts of Belgaum (now Belagavi), Bagalkot, Bijapur (now Vijayapura), Gulbarga (now Kalaburgi) and Bidar, with Maharashtra (Kolhapur, Solapur) to the north and Andhra Pradesh (now Telengana, Hyderabad is 150 km from Bidar) to the west. The region, watered by the Krishna River flowing from west to east in the Western Ghats, is part of the sugar bowl of the state - and an unlikely area to find vineyards and wineries.

So readers may be surprised to know that 11 of Karnataka's 21 wineries are located in this region - most are totally unknown, despite having been set up in 2008-09 following the 2008 Karnataka Wine Policy, but have adapted to the market and are still operating.

What has facilitated their survival is the demand for wines (fortified or otherwise) in the economy segment priced at less than Rs 150 per bottle at retail, as well as the producers being able to also supply such wines directly to Wine Taverns in returnable 20-litre plastic carboys. This is unique to the region - none of the wineries in Southern Karnataka supply bulk wine, and of course this is not (yet) permitted in neighbouring Maharashtra.

The 10 Health Benefits of Wine Will Inspire You to Pour a Hearty Glass Tonight

We drink it with a nice dinner. We covet it after a **long day**. When we gather for a celebration, it always finds its way to the table. Yes, we're talking about wine. **Wine** is the center of happiness. It relaxes our mind and brings smiles to faces. Beyond the mental happiness, **drinking alcohol** can be good for your physical health when it comes to moderate wine consumption. We've all heard that a glass of wine here and there is good for you, but how exactly does it contribute to **your health**? The ways seem almost endless. New studies appear to be constantly backing up the health benefits of **drinking wine** for moderate drinkers. From decreased mortality rate to attacking cancer cells, a little wine at the end of the day can go a long way when it comes to beneficial effect.

Before we talk health benefits though, let's talk **pour size**. It can be hard to gauge what an appropriate pour size is given the varying sizes and shapes of wine glasses. While we may love our oversized wine glasses, medical experts don't consider that a proper pour.

A proper glass of wine is a 5-ounce pour. And when we say "moderate drinking", that means what is clinically considered to be healthy. For women, it's one glass a day and for men it's two - I know ladies, we get the short end of the stick. Wish more meant better, but that's life.

Now that we got that straightened out, let's get to the fun part. Pour yourself a glass, and take a look at the ten ways wine benefits your health.

1. IT CONTAINS ANTIOXIDANTS.

In the battle against fighting off free radicals that cause terrible health problems such as cancer, wine could be your answer. Wine is full of antioxidants that attack free radicals when they come lurking around. When choosing your wine for antioxidants, go with white.

A study done by the **University of Barcelona** scientists found that the phenols in white wine had equal, if not higher antioxidants, than those in red wine. This is interesting because wine drinkers commonly believe red wine provides the most health benefits in moderate amounts.

2. IT BOOSTS THE IMMUNE SYSTEM

While you probably shouldn't stop taking your daily vitamins, drinking a glass of wine daily can give your immune system a boost. Moderate alcohol consumption can ward off infections and keep your immune system in check.

Don't get too carried away, though. Excessive consumption can lead to negative effects that defeat the whole purpose of drinking wine for an immunity boost.

3. IT INCREASES BONE DENSITY.

As we get older, our bones get more brittle. You could increase your calcium intake by drinking milk, or you can do yourself a real favor and sip on a relaxing glass of wine.

Red wine has high levels of silicon, which is great for your bone mineral density. It increases the density and reduces the chance of osteoporosis. And like warm milk, it may help you doze off at night.

4. IT REDUCES THE RISK OF STROKE.

Moderate consumption of wine - and alcohol in general - can prevent blood clotting. Wine acts as a natural blood thinner, breaking up any blood clots that could lead to a stroke. This lower risk of blood clotting is more beneficial to females than males.

Red wine, in particular, contains phenols that act as a blood thinner in a similar regard to aspirin - and resveratrol is mostly to thank. A study done by John Hopkins University Medical Center found that resveratrol found in red grape skins could protect against stroke when the grapes were turned into wine.

Beware, while light to moderate consumption may be good in preventing a stroke, heavy drinkers are more likely to have the opposite effect, resulting in a higher risk of heart attacks, not a lower risk. Like all good things in life, moderation is key.

5. IT REDUCES THE RISK OF HEART DISEASE.

In the battle against heart disease, taking all necessary precautions is well worth it - especially when it involves wine. The tannins found in red wine contain procyanidins - phenols which neutralize free radicals - that have shown to be effective in preventing cardiovascular disease.

According to *WebMD*, a study by researchers at the Israel Institute of Technology, Haifa tested the effects of red wine on the health of blood vessels. What they found after 21 consecutive days of consumption was that blood vessel cell health was enhanced,

improving the flow of blood. This increases the health of the heart, lowering the risk of cardiovascular disease.

So the lesson is, if you want a healthy heart, bite the bullet and drink a glass of wine. While the **American Heart Association** does not support drinking for nondrinkers or those at risk of alcoholism, those who already imbibe may continue light drinking for positive heart health.

6. IT CAN LOWER CHOLESTEROL.

Have bad cholesterol and no dietary guidelines? Pour a bowl of your Cheerios in the morning and stick to wine at night. Those procyanidins in red wine that promote a healthy heart also promote lower cholesterol.

Resveratrol also decreases LDL - bad cholesterol - while increasing the HDL - good cholesterol. This also means that red wine benefits blood pressure, so if you're suffering from high blood pressure, it's best to pour a glass. If you're having trouble keeping your cholesterol levels on the good side, sip on a daily glass of medicinal red wine.

7. IT REDUCES THE RISK OF TYPE 2 DIABETES.

Let's face it, diabetes flat out sucks. You can't indulge in cravings without first considering the health repercussions that result in more than a larger waistline. The good news is that if you are at risk for type 2 diabetes, wine may help.

Resveratrol has been proven to improve sensibility to insulin. With insulin resistance contributing to type 2 diabetes risk, a nice glass of wine makes the list of things you can enjoy.

8. IT REDUCES THE RISK OF CANCER.

In the battle against cancer, wine may be on your side. The risk of colon cancer, prostate cancer, and breast cancer can be reduced by drinking a glass of wine. The antioxidants combat nasty free radicals that allow cancer to thrive. Red wine especially is beneficial, as the resveratrol that fights against heart disease also fights against cancerous cells.

Researchers at **Harvard Medical School** found that:

"Men who drink an average of four to seven glasses of red wine per week are only 52 percent as likely to be diagnosed with prostate cancer as those who do not drink red wine. In addition, red wine appears particularly protective against advanced or aggressive cancers."

Not that we need another excuse to drink wine, but if it can help against the vicious battle against cancer, then we'll happily pour a glass. If you're looking for a red high in resveratrol, then opt for a nice glass of cabernet sauvignon.

9. IT IMPROVES COGNITIVE FUNCTION.

It may sound crazy, but drinking a glass of **wine is like food for the brain**. Drinking a single glass has shown to improve brain function. The chemicals in red wine prevent the brain's neurons from dying off.

As a result, it protects the brain from dementia while slowing the onset of **neurodegenerative diseases like Alzheimer's** and Parkinson's.

The next time you do your brain exercises, drink a glass of wine to help you gear up.

10. IT PROMOTES LONGEVITY.

When you hear about healthy living and longevity, time and time again the **Mediterranean diet** comes up. At the core of that diet, beyond olive oil and vegetables, is wine. There is something magical inside the daily glass of wine that increases life span. And that magical thing is resveratrol.

Researchers at **Harvard Medical School** found that resveratrol activates a protein that acts as an anti-aging agent. The interaction increases overall health, thus promoting longevity. If a decreased mortality rate is not enough reason to drink a glass of wine, then I don't know what else it.

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Bijapur

Analysis of wine

Second Day 14/08/2019

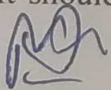
1. **Soluble Solids:** Knowledge of the sugar content is important to the winemaker in determining the maturity of the grapes, the amount of amelioration needed, the approximate alcohol content and the completeness of fermentation. Soluble Solids content are measured using a Brix (Balling) hydrometer that measures the density of an aqueous solution. The Brix (Balling) hydrometer is calibrated in degrees corresponding to percent of sucrose in water at 20°C (68 °F) or grams of sucrose per 100 grams of water at 20°C. As fermentation proceeds there is an increase in Ethanol. Since ethanol is less dense than water, most dry wines will have a negative Brix (Balling) reading. To determine accurate residual sugar readings after fermentation you would have to utilize another procedure such as the **®Clinitest** or Gold Coast Method.

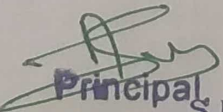
2. **pH and Titratable Acidity:** Acid levels significantly influence wine pH that typically falls between 3.2 to 3.7 on a pH scale. Monitoring pH is important to help determine ripeness of the grape; color stability of must and wine along with chemical and microbial stability. The major acids present in wine are tartaric and malic acid. Acids are responsible for the fresh crisp taste of wine. Wines with a low acid content appear to be “flat” and insipid. Wines with high acidity appear to be tart and puckery. Orange tinted rose’s and brownish purple red wines may indicate wines with a high pH value. As wine pH lowers towards 3.0 the color of our rose’s and red wines will become a brighter pink and a deep ruby red respectively. Wine stability will also benefit from a lower pH. As the pH increases towards 4.0 we have a serious threat for microbial growth, physical and chemical instability. Therefore, we can see it is very important to monitor our pH

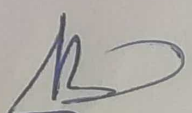
and acid levels properly. Detailed analysis will give us the basis for determining any chemical additions needed to the must or wine to affect our pH and acid levels in achieving proper quality control in addition to a more balanced wine. Wine pH can be measured using a pH meter accurate to .01 pH units. I would recommend a benchtop meter with a minimum two point calibration curve and able to read in both pH and mV modes. Total Titratable Acidity is determined by a direct titration procedure. The wine acids are titrated with a 0.1N standardized sodium hydroxide solution to a phenolphthalein endpoint of 8.2 on the pH scale.

Third day 16/08/2019

Ethanol Content: Most table wines have an alcohol content of 10-14% by volume. A wine with low alcohol content may be perceived as being slightly thin in body and will be more susceptible to microbial spoilage than wines with greater alcohol content. The other end of the spectrum includes wines being too high in alcohol concentration that provide a delicate wine with a "hot" sensory evaluation on the palate. The accurate concentration of alcohol must be known also to abide by federal (TTB) and state (ODLC) regulations for alcohol concentrations and label laws. The ebulliometric method for alcohol determination is the most recommended method for the wine industry. This method is based on the boiling point of a mixture of ethanol and water. Ethanol will lower the boiling point of water. As the ethanol concentration increases, the boiling point of the aqueous solution will lower. This method also has some limitations. Certain compounds such as sugars can influence the boiling point of a wine. Wines with higher sugar concentrations need to be diluted with water below 2% as to yield a boiling point of 96°C to 100°C. Therefore the result must be multiplied by the dilution factor to give the correct result. This dilution factor is questioned as to its integrity since you are multiplying the relative error back into the equation. It should be noted that wines analyzed for alcohol content with higher


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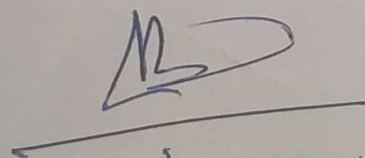

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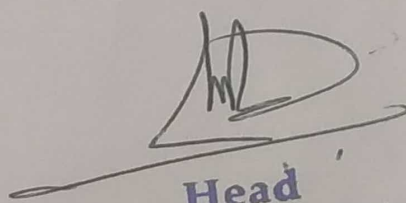
then 2% residual sugar concentration by the ebulliometer approximates that of the actual alcohol content. The better choice for alcohol measurement for wines of high sugar content would be by the distillation method.

Wine Analysis Report (Lodi grapes)

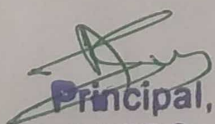
S.No	Name	pH	Titratable acidity	% of alcohol/volume	Remark
1	Anil.Mudalagi	3.6	6.0	13.0	OK
2	Ramesh.Navi	4.0	5.8	13.4	
3	Ashwini.Jadhav	4.2	6.2	14.4	
4	Pallavi.Adalli	3.8	5.8	13.8	
5	Rashmi.Dashyal	3.8	5.9	13.5	
6	Harshitkumar.H.K	4.1	5.9	13.6	
7	Akila.Karani	3.9	5.85	14.0	
8	Kalavati.Biradar	3.9	5.9	13.2	
9	Shreedevi.Bagali	3.8	5.8	13.5	
19	Sujata.Patil	4.2	6.2	13.8	
11	Vaishali.Patil	3.8	6.5	14.2	
12	Rashmi.Kulkarni	3.8	6.2	14.9	
13	Saraswati.V.K	4.1	6.3	13.5	
14	Chaitra.Hiremath	3.6	6.4	13.7	
15	Vivekanand.Budnur	3.7	6.8	13.5	
16	Somanath.Huggenavar	3.9	6.0	14.5	



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Principal,
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Bijapur

A visit to the richo Wine factory. with students.

ಮುಖ್ಯ ವಿಜ್ಞಾನ ಪ್ರವರ್ತಕರು
ಮುಖ್ಯ ವಿಜ್ಞಾನ ಪ್ರವರ್ತಕರು



LAT 16°57'11" N

TUESDAY 08.13.2019

LONG 75°44'47" E

LOCAL TIME 16:06:22

NH52, Kannal, Karnataka 586119, India, Karnataka,
Kannal, India, 586119

onsite visit to richo Vinerary
Pvt limited

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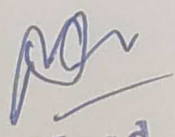
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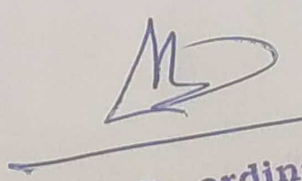


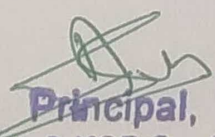
LAT 16°57'11" N
LONG 75°44'47" E
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visiting to richo Vinaray Pvt limited

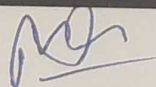

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TANK NO: 17
TANK CAPACITY : 25 KL
CALIBRATION DATE: 24-07-2017
EXPIRY DATE : 23-07-2019

LAT 16° 57' 51" N DAY 08.13.2019
LONG 75° 46' 00" E TIME 15:14:40



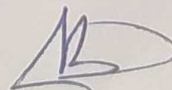
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Presentation of wine in TANK



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IQAC, Co-ordinator

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Wine bottle. (lastly packed with seal)

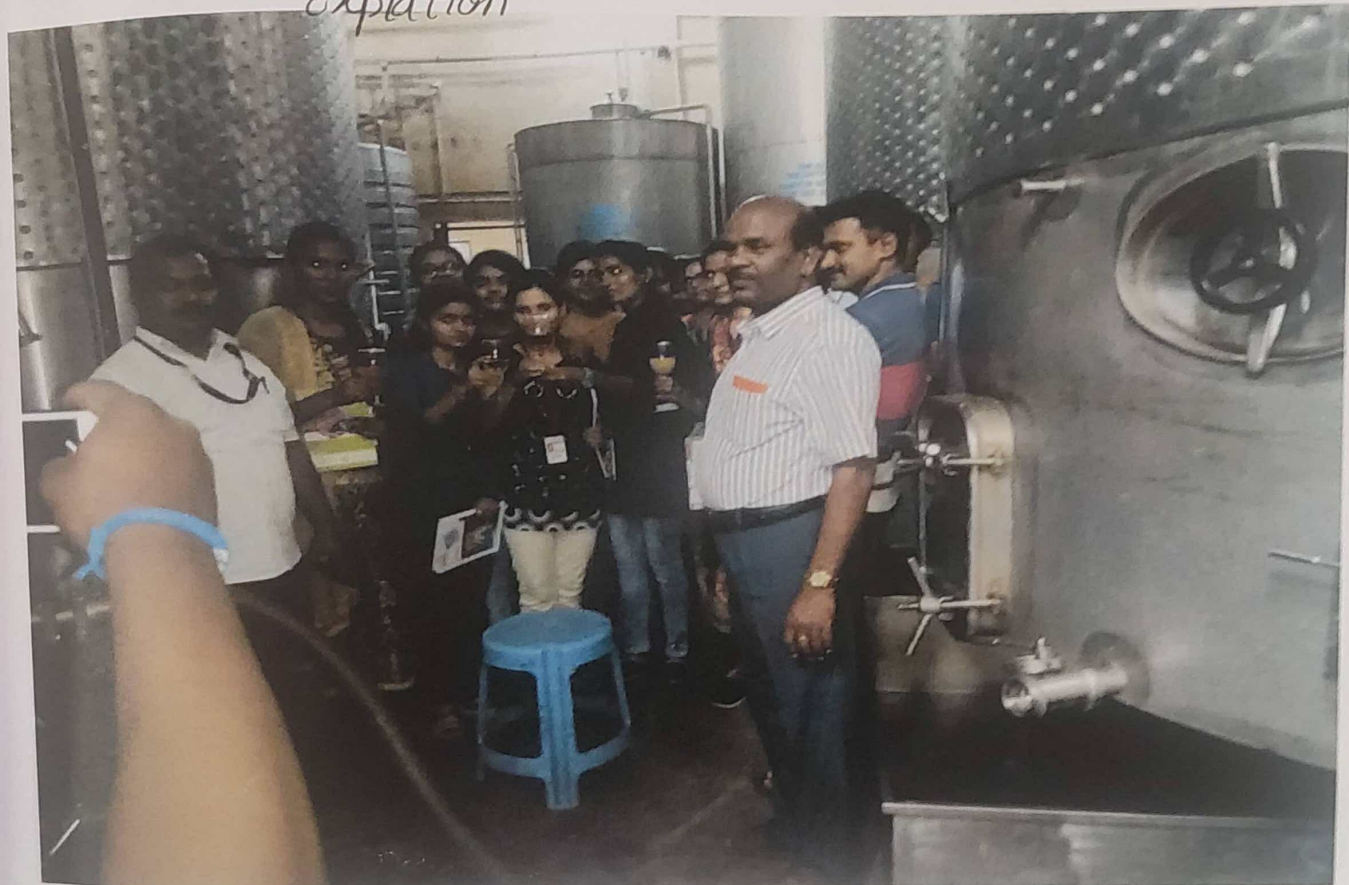


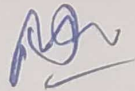
A visit to the wine factory.

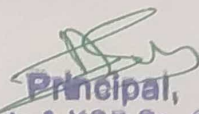


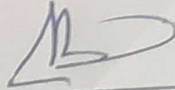
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LONG 75°44'47" E LOCAL TIME 16:00:30

Explanation




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