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IDENTIFICATION OF FUNGUS W.S.R. TO GULAB ARKA (ROSE HYDROSOL)

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ABSTRACT

GulabArka(Rose water) is the major auxiliary product which has been produced since ancient time. It is obtained through the distillation process. Due to its fragrance and medicinal value, it is used in cosmetic, food, flavouring, levigation and as anupana. The shelf life of ArkaKalpanais 1 year as perD&C 1940. The major problem during its storage is fungal growth, which diminishes its quality.

AIM & OBJECTIVE: To identify the fungus.

MATERIAL & METHODS

In this study, Rose water was prepared with fresh rose petals procured from local market of Haridwar. DegBhapkaYantra was used for steam distillation process; it was washed properly with hot water then dried in sun light properly for sterilization and using IPA(Isopropyl alcohol). Then it was kept in air tight bottle and stored at normaltemperature. Arkawas prepared under sanitised conditions but it developed an abnormal cottony growthalong with the mild hazing after 4months of manufacturing. For fungal culture Rose Bengal agar solution was used After autoclaving, media was poured onto petri dish and left for drying. After 24hours it was checked for contamination. Then 100microltr of sample was spreaded properly onto fresh plate and kept in incubator. After 72hours fungus was grown.Lectophenol cotton bluestain is used for slide preparation and this slide is observed under microscope.

RESULT & CONCLUSION

Identification of fungus was done on the basis of morphological.A mass of branching, thread-like hyphae and finger like projection were seen on microscope. On the basis of these characters the fungus was identified as mycelium.

KEY WORDS-Arka,IPA

INTRODUCTION

One of the most widely used forms of medicinal plants is their aromatic water. The aromatic water is aqueous solution of a volatile oil or other volatile substance prepared by distillation from a plant or a mixture of different plants[1]. One of the most famous aromatic water isRose water (*GulabArka*). over 200 species and more than 18000 cultivers form of the rose have been identified[2], but only few species are used in the aromatic production. Out of these Damask Rose (*Rosa damascene*) is abundantly used due to the presence of rich aromatic compounds in it[3]. It is the main product of Rose flower with a scientific name of *Rosa damascene. Rosa damascena* as an ornamental plant[4] belongs to *Rosaceae* family**.** *Rosa damascena*, also known as the Damask Rose and Rose of Castile [5]. Its origin was by tradition the Middle East. Genetic tests indicate that it is a hybrid of R. *moschata x R. gallica* crossed with the pollen of *Rosa fedtschenkoana*, which indicates that a more probable origin is the foothills of central Asia, which is the home of its pollen parent [6]. It is a traditional product that has long history in Iran and global reputation [7]. Bulgaria, Turkey, France, and India are the largest producers of rose water. Rose water has been used for centuries in religious rites and for physical, emotional, and spiritual purposes or healing [8] .Rose water traditionally was used as antiseptic agent for eye washing [9] and mouth disinfecting [10] and as antispasmodic agent for alleviating the abdominal pains, and bronchial and chest congestions. Extract (ethanolic, aqueous)

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Hypnotic[11, 12], Antitussive[13], Extract (Hydroalcoholic , ethanolic) Analgesic [14 , 15] , Extract (Hydroalcoholic)Anti-inflammatory [16] , Extract(aqueousethanolic) effect on cardiovascular[17].The prescence of flavonoids provide UV protection action. The main chemical content of Rose water is phenyl ethyl alcohol[18] which provide fragrance in rose water.Other chemical which are present inRose water are*Citronellol (15.9%–35.3%), geraniol (8.3–32.3%), nerol (4–9.6%), nanadecane (4.5–16%), heneicosane (2.6–7.9%)*[19].The medicinal functions of *Rosaceae* are partly attributed to their abundance of phenolics compound. Phenolics possess a wide range of pharmacological activities, such as antioxidants, free-radical scavengers, anticancer, anti-inflammatory, antimutagenic, and antidepressant[202122232425].In spite of the wide range of uses it deteriorates before 1year. Even though the shelf life of *GulabArka* is 1year as perD&C 1940. In this study Rose water has been taken inwhich fungus was developed along with the mild hazing with in 4 months of manufacturing.Even it was washed properly with hot water then dried in sun light properly for sterilization and using IPA (isopropyl alcohol). Therefore, this study has been carried out.

AIM & OBJECTIVE

To identify the fungus which is generated in Rose water

MATERIAL & METHODS

The whole process devided into

- Procurement of raw drugs
- Preparation of Rose water
- Fungus culture
- Identification of Fungus

1. Procurement of raw drugs

Fresh rose petals procured from local market of Haridwar

2. Preparation of Rose water

Ingredient - Rose petals:1 kg, Water: 10 lt.

Method- All equipments were washed properly with hot water then dried in sun light for sterilization along with IPA. 1kg rose petals were taken and placed in *DegBhapkaYantra*of 30lt.capacity.10 lt. of water was added. It was placed on a heating mantle.First one third part of Rose water was discarded and rest were collected.Total 3lt. of Rose water were collected and Stored in air tight container[26] at room temperature.

Table No. 1-Preparation of Rose water

3. Fungal culture

Preparation of Rose Bengal agar solution(Ingredients Gms / Litre)

Papaic digest of soyabean meal 5.000

Dextrose 10.000

Monopotassium phosphate 1.000

Magnesium sulphate 0.500
Rose bengal 0.050
Agar 15.000
Final pH (at 25°C) 7.2±0.2
This is for 1000ml standard. We calculated accordingly for 100ml- Suspend 10.71gm in 1000ml distilled water. Heat to dissolved the medium completely, sterilise by autoclaving at 15lbs. Pressure, 121ºC temperature for 15min.

Preparation of Petri Dish

After autoclaving, media was poured onto petri dish and left for drying. After 24hours it was checked for contamination. Then 100microltrof sample was spreadedproperly onto fresh plate and kept in incubator. After 72 hoursfungus was grown. Total 8 colonies were grown.

Table No. 2-Preparation of Petri Dish

Preparation of Slide

A few drops of Lectophenol cotton blue was placed on a glass slide. One colony of fungus was taken by sterile needle and was spreaded in drop using another sterile needle. Then covered with a cover slip and observed under high power microscope.

Table No. 3-Preparation of Slide

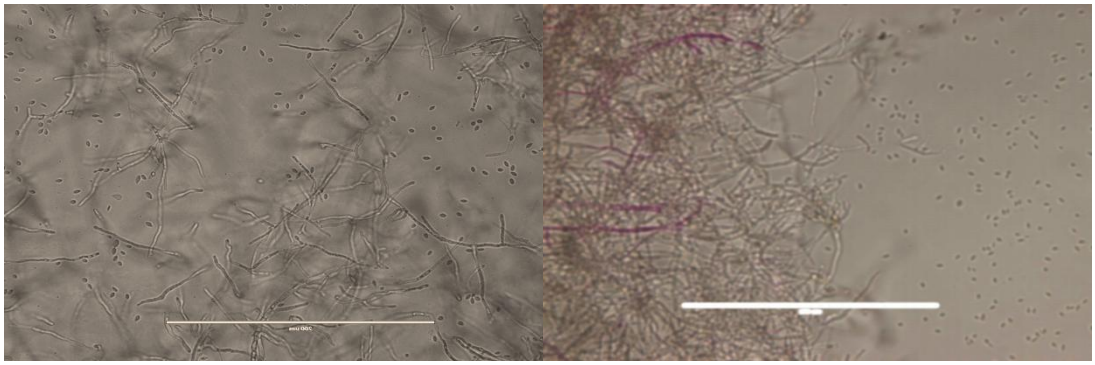
4. Identification of Fungus

Identification of fungus was done on the basis of morphological character under microscope.

RESULT

A mass of branching, thread-like hyphae and finger like projection were seen on microscope. On the basis of these characters the fungus was identified as mycelium.

Table No. 4- Mycelium under microscope



DISCUSSION

In this study Rose water was prepared according to *ayurvedic* text *Ayurveda Prakash*. It is tasteless, easily palatable liquid preparation which can preserve for longer than other *kalpanas* like *swarasa*, *kwatha* etc. In *ArkaPrakasha*, it is considered as a fundamental *Kalpana* and having long shelf life. But it deteriorate very easily before mentioned shelf life. Rose water have become utmost importance and large quantities of commercially and locally manufactured aromatic water. It is used abundantly due to its cosmetic as well as medicinal value. It is rich in flavanoids, tennins, antioxidents and vitamins A, B_3, C, D and E, making it beneficial in various aspect of life[27]. Even it is used in eye disease, wound healing, internal intake so these uses increase its importance. Their production is strictly controlled to ensure that they are free from any microorganism. The main problem during its storage is fungal growth, so the need of hour is to identify this fungus. We can increase or improve the shelf life of Rose water after the identification of fungus. The fungus grown in Rose water looks like cottony thread in bunch like structure and off white in colour. When microscopic examination was held, we found mycelium as a result. This growth may be due to the moisture contain because the moisture is the common cause of fungal growth and mycelium is the common fungus which grown in moisture. Rose water is rich in nutrients, this fungus absorb all the nutrient from the Rose water and grow day by day.One of the function of fungus is decomposition, so may be this fungus decomposing all the nutrient and volatile oil which are present in Rose water and this reason may be decaying Rose water property. That's why fungal identification is important which mentioned in this article.

CONCLUSION

Rose water provides an ideal growth environment for fungus so the fungus was identified in this study on the basis of morphological characters as a mycelium. The Method which is used to identify this fungus is very convenient and cost effective and does not require any expensive equipment and chemical. Handling this equipment is very easy and less time taking.

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