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**Thakkar Khushi Nimesh Kumar**  
UG Scholar in Jawaharlal Nehru  
Homoeopathic Medical College &  
Hospital, Parul University,  
Vadodara, Gujarat, India

**Dr. Monimala Pramanick**  
HOD and Assistant Professor,  
Department of Homoeopathic  
Pharmacy in Jawaharlal Nehru  
Homoeopathic Medical College &  
Hospital, Parul University,  
Vadodara, Gujarat, India

**Dr. Suraj Singh Bhadoria**  
Assistant Professor, Department  
of Homoeopathic Pharmacy in  
Jawaharlal Nehru  
Homoeopathic Medical College &  
Hospital, Parul University,  
Vadodara, Gujarat, India

**Dr. Poorav Desai**  
HOI and Dean of Jawaharlal  
Nehru Homoeopathic Medical  
College and Hospital, Parul  
University, Vadodara, Gujarat,  
India

**Corresponding Author:**

**Thakkar Khushi Nimesh Kumar**  
UG Scholar in Jawaharlal Nehru  
Homoeopathic Medical College &  
Hospital, Parul University,  
Vadodara, Gujarat, India

## Formulation of standard *Hypericum perforatum*, *Arnica montana* and *Azadirachta indica* Mother tincture to prepared as lotion with definite proportion and quality control

**Thakkar Khushi Nimesh Kumar, Dr. Monimala Pramanick, Dr. Suraj  
Singh Bhadoria and Dr. Poorav Desai**

**Abstract**

**Background:** Through this study preparing the mixed variety of lotion by three different Homoeopathic Standard mother tinctures like *Hypericum perforatum*- Q, *Arnica montana*- Q and *Azadirachta indica*- Q in the aqueous base solution as drug vehicle ratio of (1:9) with quality control.

**Methodology:** In this process preparing the Lotion from Standard *Azadirachta indica* mother tincture, *Arnica montana* mother tincture and *Hypericum perforatum* mother tincture was procure from the Pharmaceutical Company in base line sample of aqueous solution as drug and vehicle ratio of (1:9). Samples were prepared by measuring the quantity first, mixing, filling and finally labelling. Samples were divide into three groups; such as standard group, sample group and control group. All these samples was passed under the UV- Visible spectrophotometer and FTIR (Fourier-transform infrared spectroscopy).

**Conclusion:** Formulation of mixed variety of *Hypericum perforatum*- Q + *Arnica montana*- Q + *Azadirachta indica*- Q gives a good result in quality control done by the UV- visible spectrophotometer and FTIR.

**Keywords:** *Hypericum perforatum*, *Arnica montana*, *Azadirachta indica*, lotion, UV, FTIR

**Introduction**

The skin is an organ that covers the whole human body and capabilities to shield the body from outside impacts, so the skin should be safeguarded and kept up with its wellbeing. The cycle of skin annihilation is portrayed by the appearance of kinks, scales, dryness, and breaks. One of them is brought about by free extremists. Cancer prevention agents are required that capability to supplement the electron lack of free extremists to repress the chain reaction <sup>[1]</sup>. Salve as per Indonesian Pharmacopeia III is a fluid planning as a suspension or scattering, utilized as an outer medication. It very well may be as a strong suspension as a fine powder with a reasonable suspending specialist or an oil in water type emulsion (o/w or w/w) with a reasonable surfactant <sup>[2]</sup>. One of the plants that are known to health benefits and are broadly utilized as beauty care products are *Clitoria ternatea* L. flowers <sup>[3]</sup>. The pieces of bloom (*Clitoria ternatea* L.) which are usually utilized are blossoms and leaves. *Clitoria ternatea* L. blossoms can treat red eyes, tired eyes, throat, skin sicknesses, urinary issues and are neutralizing agents. *Clitoria ternatea* L. bloom contains cancer prevention agents, this should be visible from the shade of the crown since it contains anthocyanins. Anthocyanins are shades from flavonoids which is antioxidant <sup>[4]</sup>.

***Hypericum perforatum***

*Hypericum perforatum* L. (St. John's Wort, Hypericaceae) is a individual from the family Hypericum, of which there are 400 species around the world. It is local to Europe, West Asia, North Africa, Madeira and the Azores and is naturalized in quite a large number areas of the planet, outstandingly North America and Australia. The plant spreads quickly through sprinters or from the gigantic seed creation and can attack pastures, upset locales, country roads, the sides of streets and expressways, and scanty woods. Lately, the utilization of H. perforatum-determined items has expanded decisively, and it is as of now quite possibly of the most consumed restorative plant on the planet. The plant has a wide scope of therapeutic applications, including skin wounds, dermatitis, consumes, illnesses of the wholesome lot and mental problems (Butterweck, 2003) <sup>[5]</sup>.

***Arnica montana***

*Arnica montana* is involved since hundreds of years in homeopathic arrangement of medication. It is utilized for the treatment of 66 unique neurotic circumstances, however regularly utilized

for injury, wounds, ailment and aggravation. In ahead of schedule middle age texts, the name 'Arnica' was not alluded anywhere. This name was given in 1533 by the St. Hildegard's 'Physica' manager which was additionally utilized in sixteenth hundred years by Dalechamps, who thought it was gotten from Greek word 'Ptarmika' which implies something that causes sniffing, furthermore, Haller and Linnaeus were the main individuals to utilize the name 'Arnica' in both drug store and natural science. In northern Spain, *Arnica montana* L. was named as: 'betonica de los montes', 'tobaco de montana', 'talpa' or 'talpica', and in 1785, the plant was effectively utilized in emergency clinics for the treatment of loss of vision that happens without a clear sore influencing the eye likewise called as amaurosis [6].

### ***Azadirachta indica***

Neem (*Azadirachta indica* A. Juss) is maybe the most valuable customary restorative plant in India. Each part of the neem tree has some restorative property and is hence monetarily exploitable. During the last five many years, aside from the science of the neem compounds, impressive advancement has been accomplished as to natural action and therapeutic utilizations of neem. It is currently thought to be as a significant wellspring of remarkable normal items for advancement of drugs against different illnesses and furthermore for the advancement of modern items. This survey gives a higher perspective chiefly on the organic exercises of a portion of the neem intensifies segregated, pharmacological activities of the neem extricates, clinical examinations also, conceivable therapeutic uses of neem along with their wellbeing assessment [7].

The main embodiment of the present invention is preparing standard *Azadirachta indica* Mother tincture with *Arnica montana* mother tincture and *Hypericum perforatum* mother tincture in aqueous base with definite proportion of drug and vehicle ratio i.e 1:9 as per the rules and regulations given by Pharmacopoeia. Whereas, 1 part is taken as drug and remaining 9 part is taken as vehicle. Samples was passed under qualitative analysis done by FTIR and UV- visible spectrophotometer.

### **Materials and Methodology**

There are following steps given as;

#### **Formulation prepared by**

1. Standard *Azadirachta indica*- Q
2. Standard *Hypericum perforatum*- Q
3. Standard *Arnica montana*- Q
4. Distilled water

#### **Site of study**

Centre of Research and Development of Parul University CR4D

#### **Investigational tool**

UV- Visible spectrophotometer (Double beam)  
FTIR (Fourier transform Infrared spectroscopy)

#### **Drug and Vehicle Ratio**

Drug and vehicle ratio is (1:9)  
Standard *Azadirachta indica*-Q 1 part  
Standard *Hypericum perforatum*- Q 1 part  
Standard *Arnica montana*- Q 1 part

### **Medicinal product**

*Azadirachta indica*- Q, *Arnica montana*- Q and *Hypericum perforatum*- Q were purchase from Pharmaceutical Pvt. LTD.

### **Procedure**

For such preparation of formulation following steps should be taken; such as;

1. Measurement
2. Mixing
3. Filling
4. Labelling

### **Measurement**

First, we prepared *Azadirachta indica* lotion, *Arnica montana* lotion and *Hypericum perforatum* lotion separately as given as;

Drug- 1 gm  
Vehicle- 9 parts  
Drug: Vehicle- (1:9)

### **Mixing**

For preparation of each sample mixed the drug proportion in a vehicle quantity.

### **Filling**

Sample should be filled in the hard glass bottles, which is clean and sterile first.

### **Labelling**

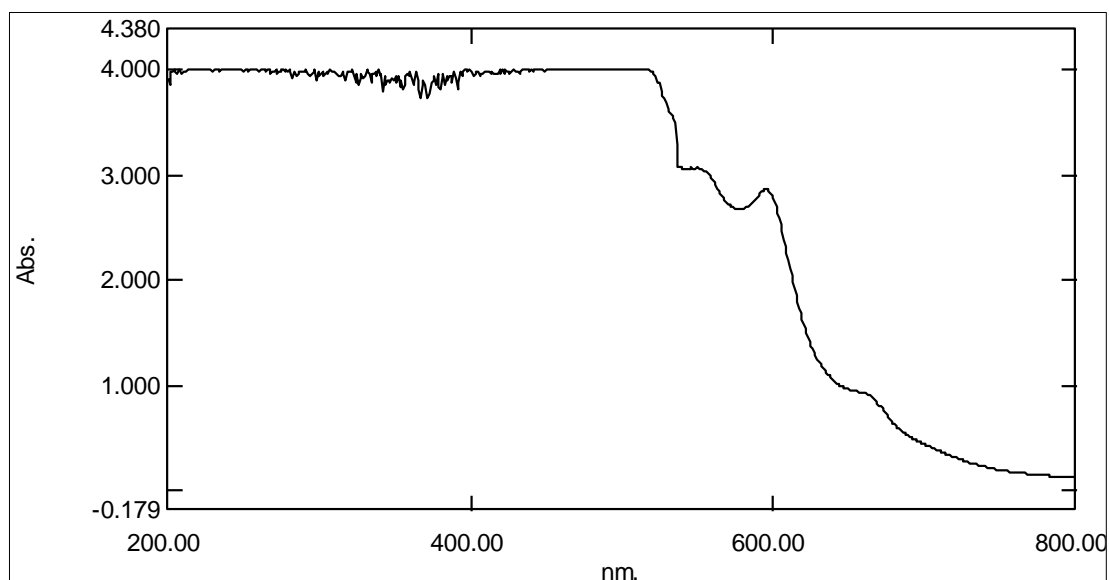
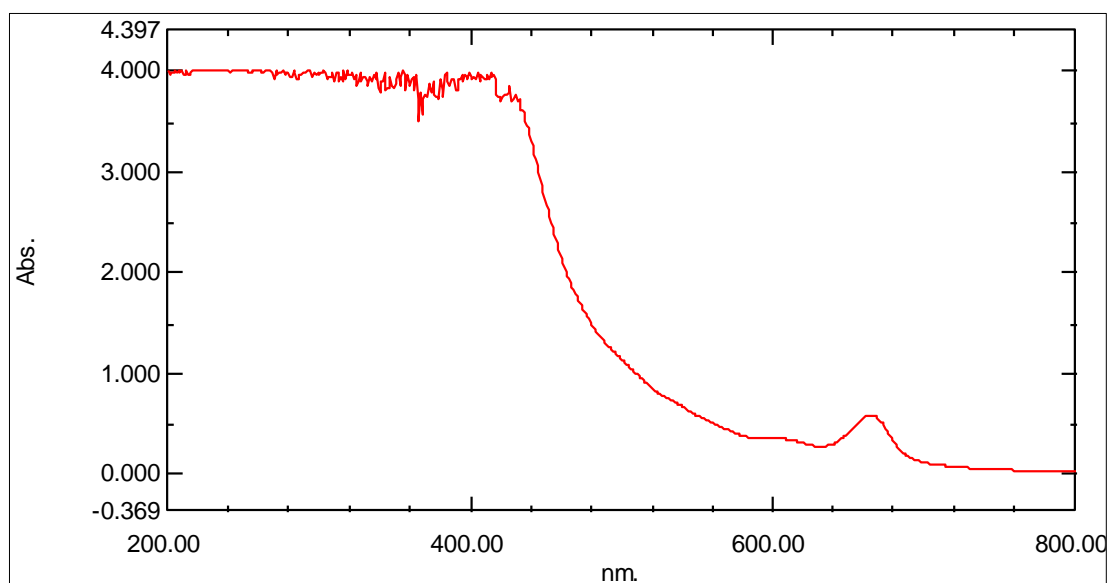
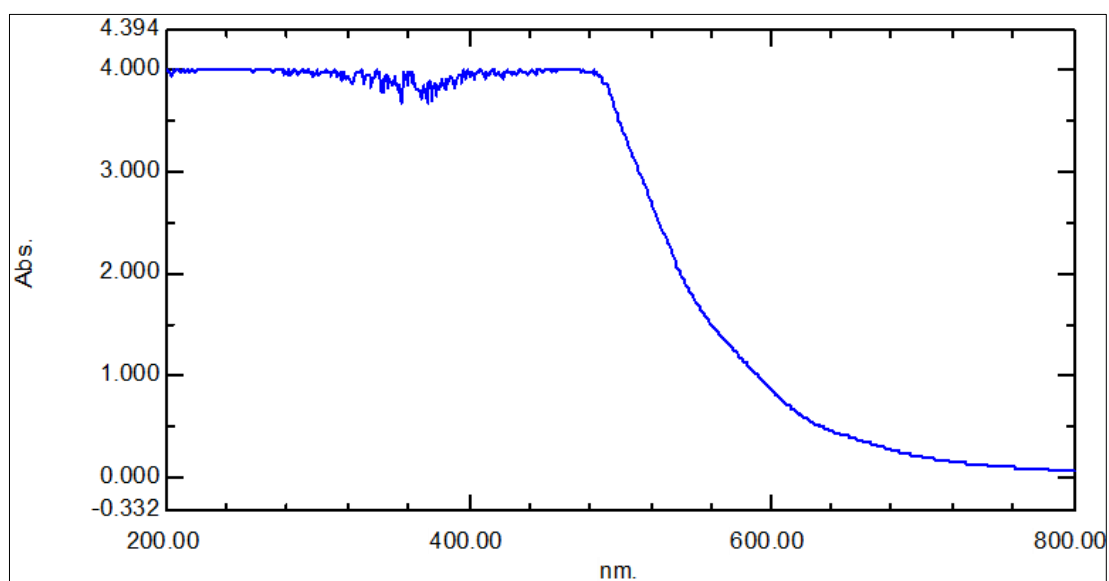
Paste label on the body of hard glass bottle, which contains Drug name, manufacturer date, Indications, quantity of drug and vehicle, overall drug and vehicle ratio.

### **Precaution**

Samples should be away from the heat, sunlight, dust, strong smelling bottles, kept in a cool and dark place.

### **Results**

While sample passing under UV- visible spectrophotometer, maximum absorption of *Hypericum perforatum*- Q is 0.998 at 645 nm, *Arnica montana*- Q is 0.987 at 510 nm and *Azadirachta indica* Q is 0.994 at 591.00 nm, *Hypericum perforatum* lotion is 0.981 at 452 nm, *Arnica montana* lotion is 0.978 at 431 nm, *Azadirachta indica* lotion is 0.991 at 405 nm, Mixed variety of *Hypericum per* + *Arnica montana* + *Azadirachta indica* lotion is 0.996 at 416 nm, maximum absorption of Ethanol is 0.980 at 222 nm. On other hand, In FTIR the Maximum transmission of *Hypericum perforatum*- Q at the wavelength of 3521.38 nm, 3388.38 nm, Maximum transmission of *Arnica montana*- Q at the wavelength of 3323.55 nm, whereas the Maximum transmission of *Azadirachta indica*- Q at the wavelength of 3458.21 nm, Maximum transmission of *Azadirachta indica* lotion at the wavelength of 3326.55 nm, Maximum transmission of *Hypericum perforatum* lotion at the wavelength of 3512.76 nm, Maximum transmission of *Arnica montana* lotion at the wavelength of 3345.54 nm, Maximum transmission of mixed variety of *Arnica montana*- Q + *Azadirachta indica*- Q and *Hypericum perforatum*- Q lotion at the wavelength of 3347.82 nm, Maximum transmission of Ethanol at the wavelength of 2976.86 nm.

**UV- Visible Spectrophotometer****Fig 1:** Standard *Hypericum perforatum*-Q**Fig 2:** Standard *Arnica montana*-Q**Fig 3:** Standard *Azadirachta indica*-Q

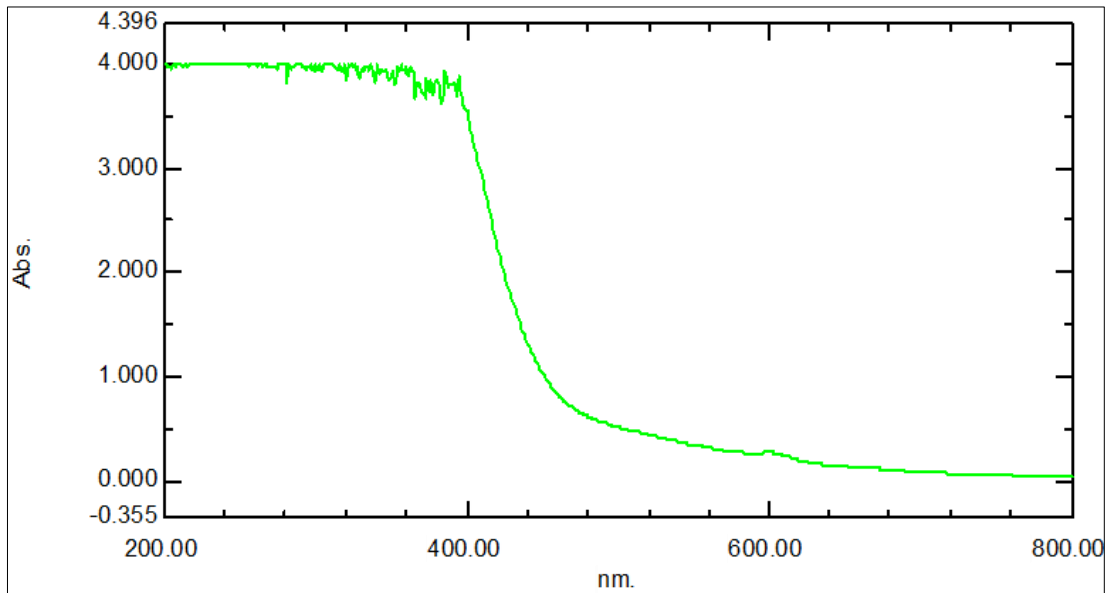


Fig 4: *Hypericum perforatum* lotion

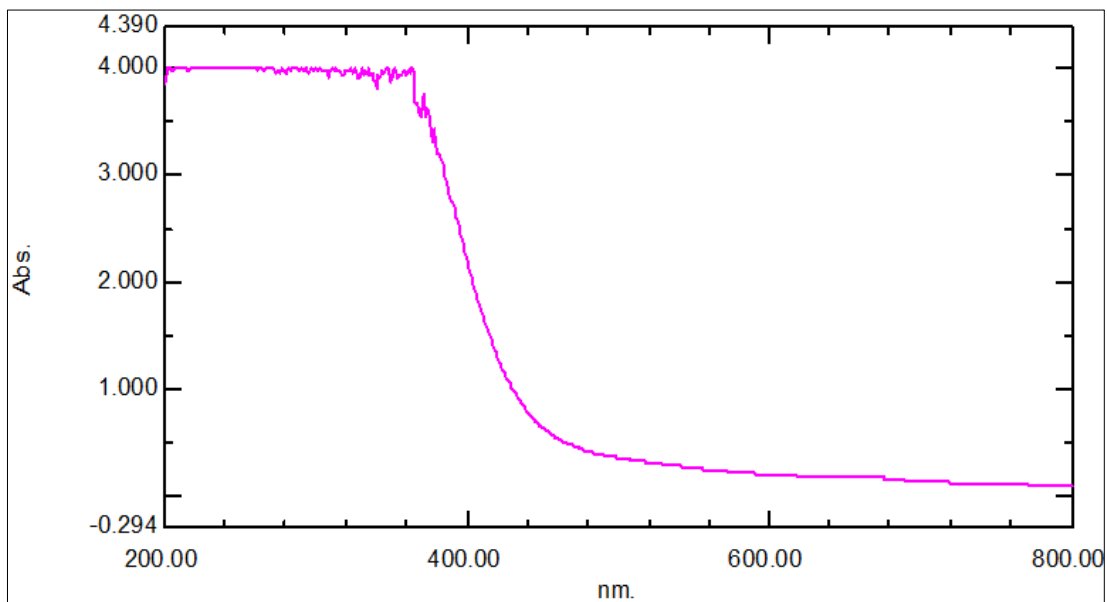


Fig 5: *Arnica montana* lotion

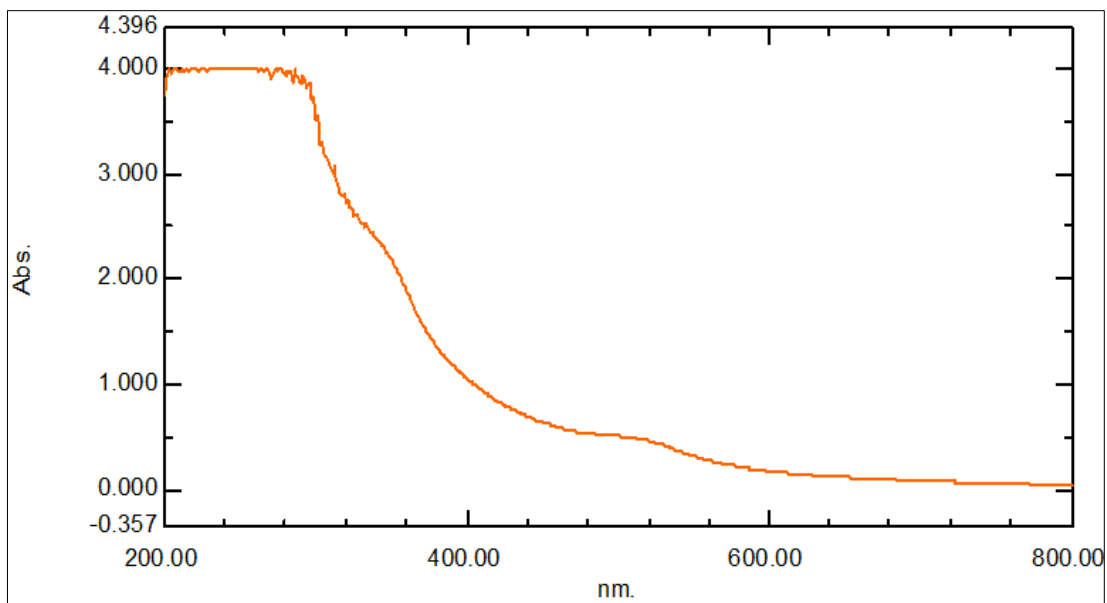
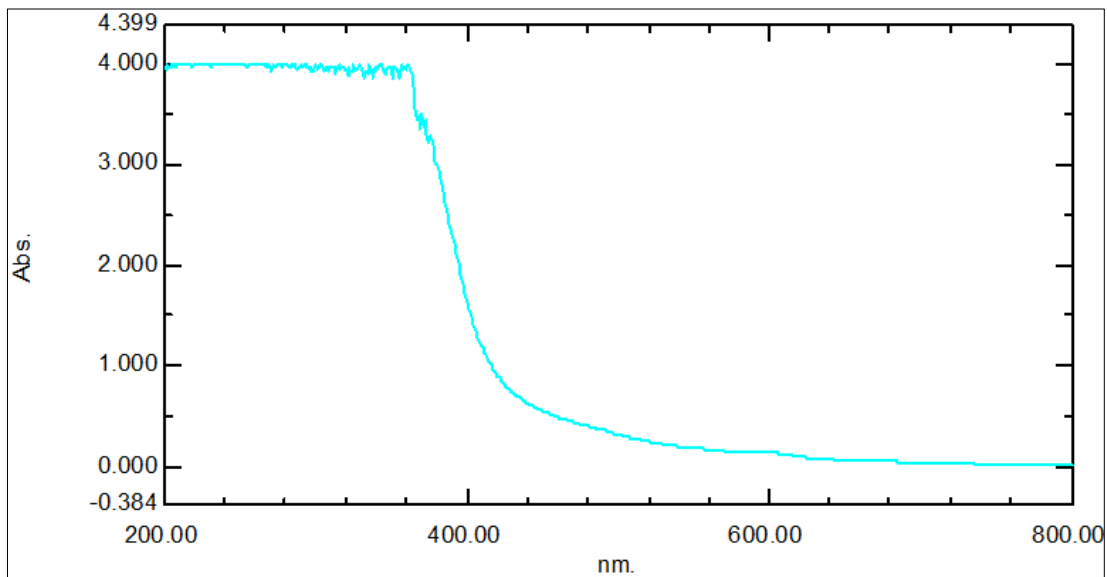
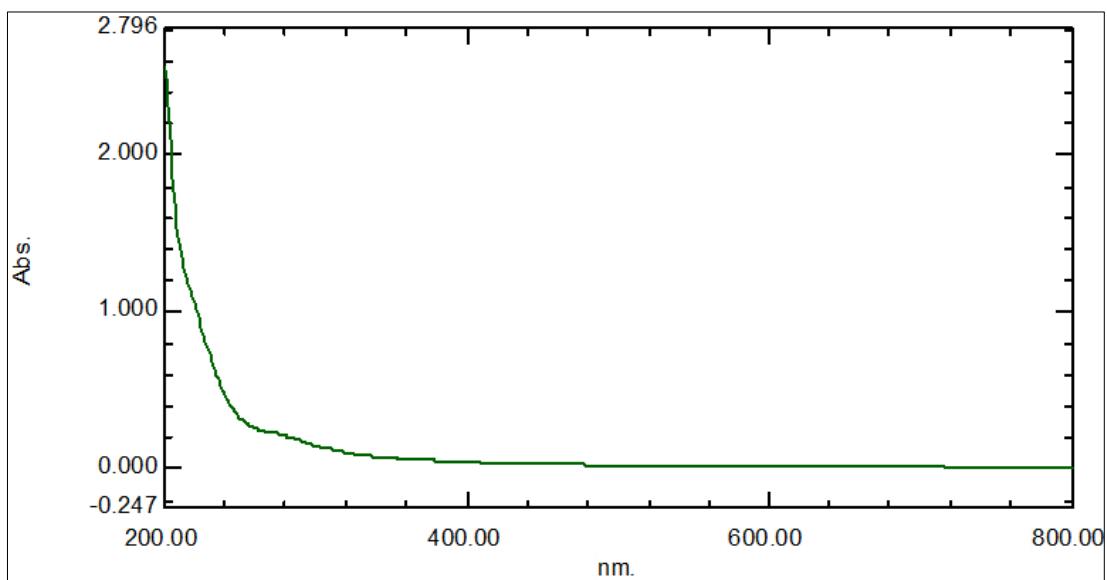


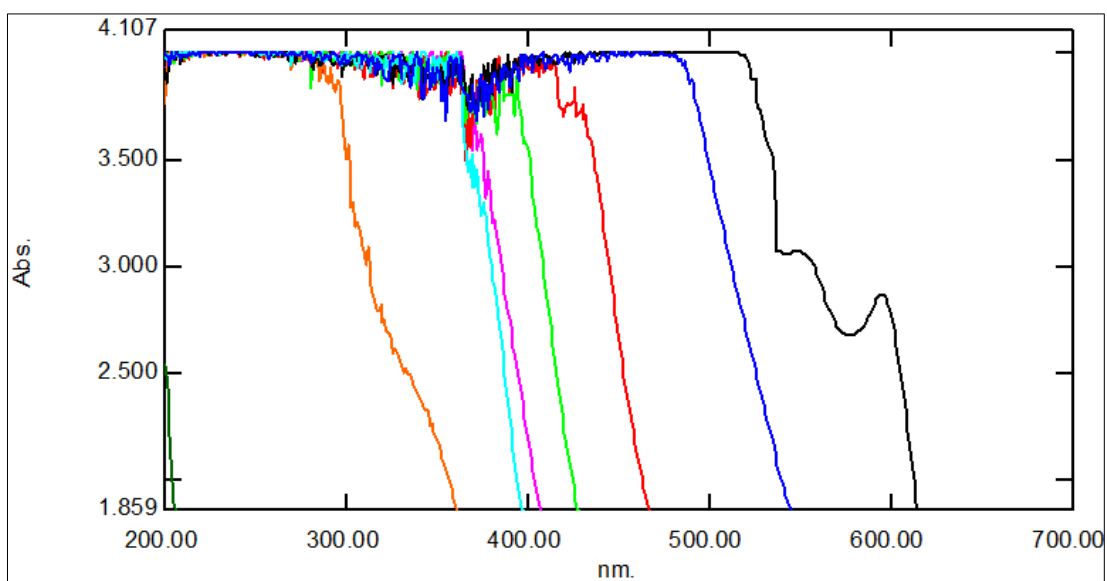
Fig 6: *Azadirachta indica* lotion



**Fig 7:** *Azadirachta indica* + *Hypericum perforatum* + *Arnica montana* lotion

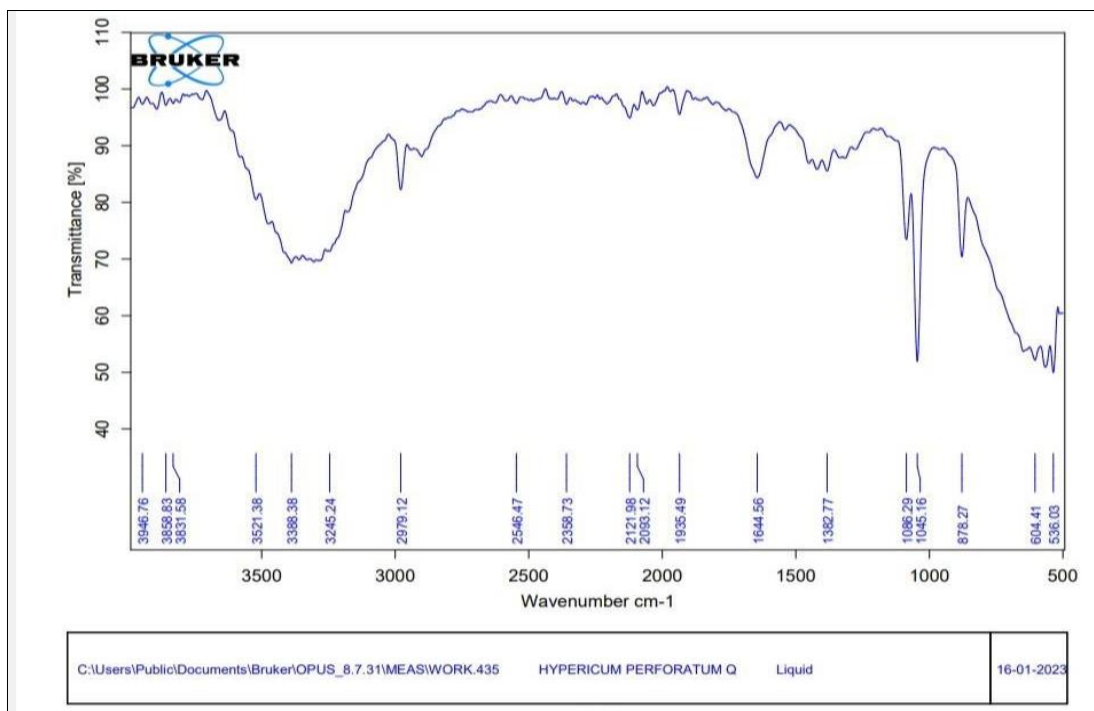


**Fig 8:** Ethanol (Control)

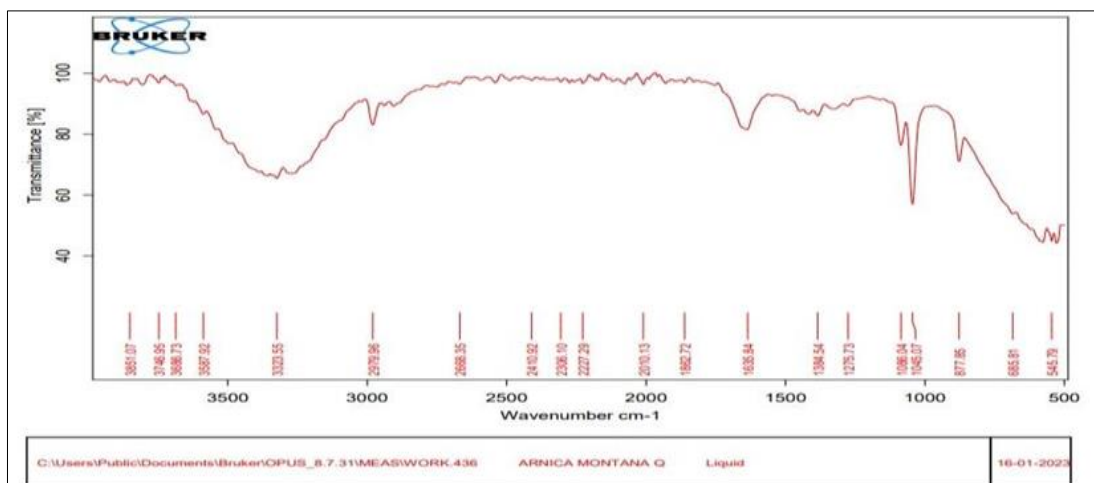


**Fig 9:** Comparative analysis of *Hypericum perforatum*- Q, *Arnica montana*- Q, *Azadirachta indica*- Q, *Hypericum perforatum* Lotion, *Arnica montana* Lotion, *Azadirachta indica* Lotion, Mixed variety of all three lotion, Ethanol

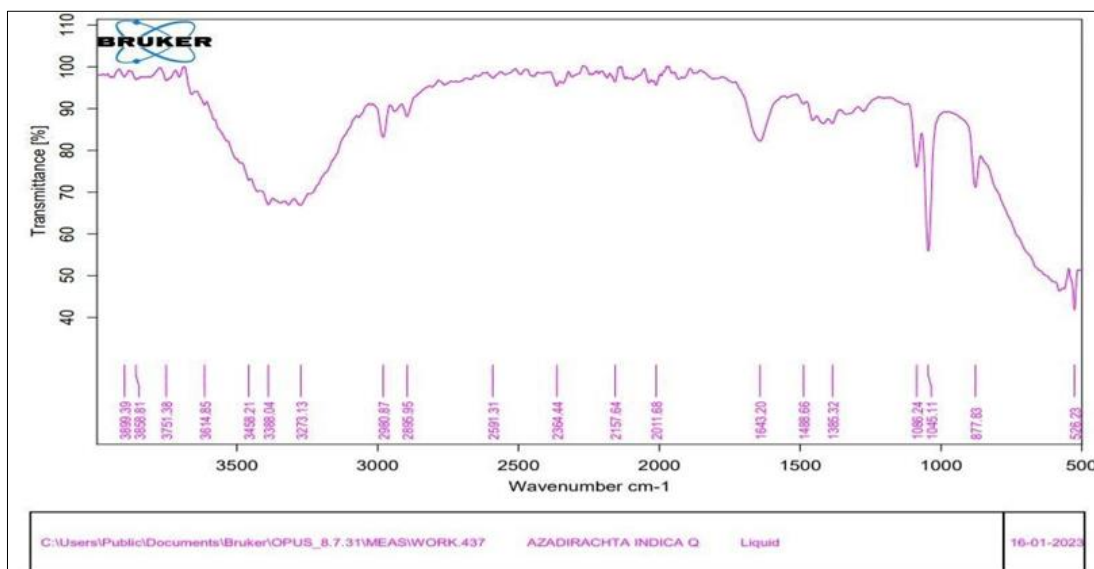
**FTIR (Fourier Transform Infrared spectroscopy) Analysis**



**Fig 10:** Maximum Transmission of *Hypericum perforatum-Q*



**Fig 11:** Maximum Transmission of *Arnica montana-Q*



**Fig 12:** Maximum Transmission of *Azadirachta indica-Q*

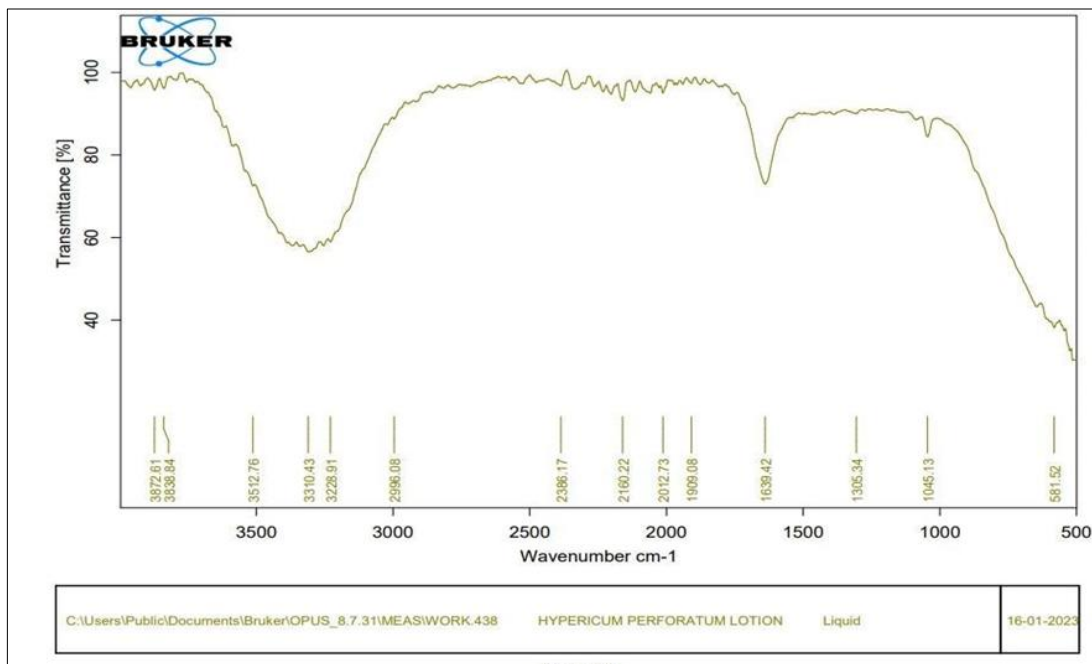


Fig 13: Maximum Transmission of *Hypericum perforatum* Lotion (Aqueous Solution)

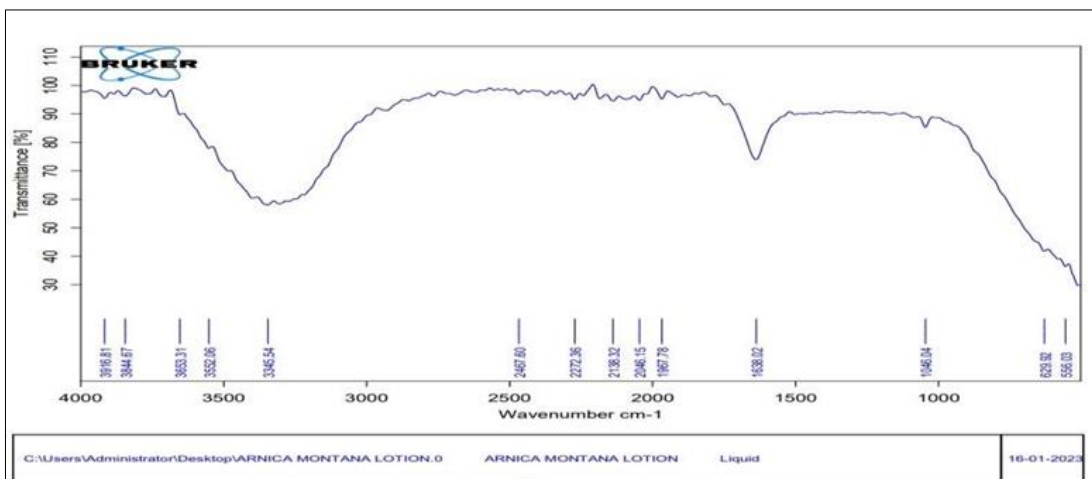


Fig 14: Maximum Transmission of *Arnica montana* Lotion (Aqueous Solution)

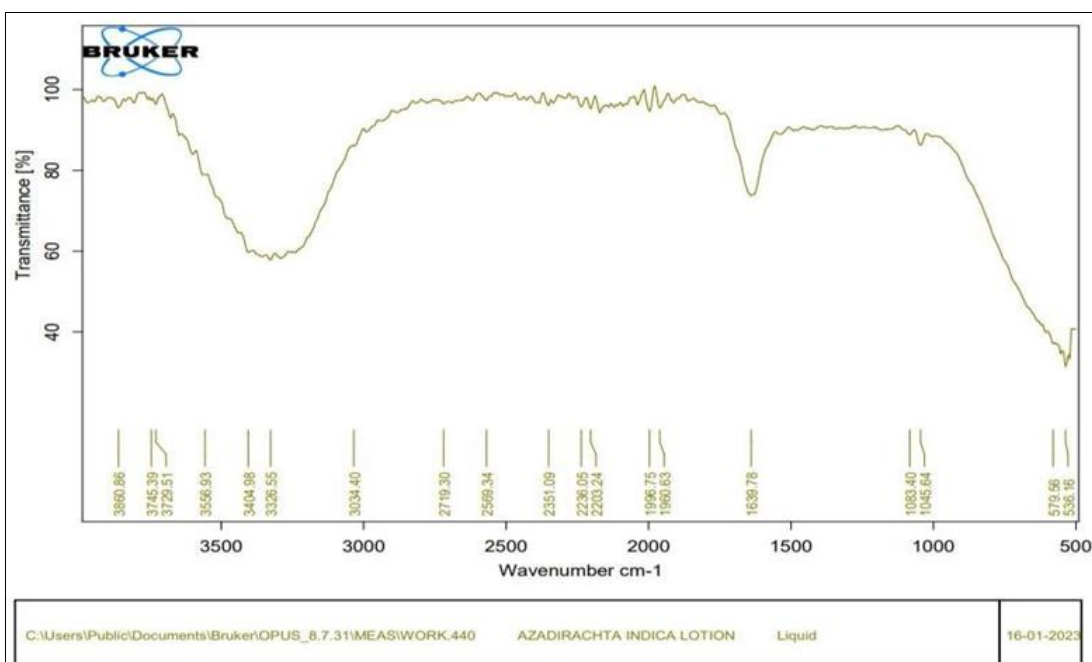
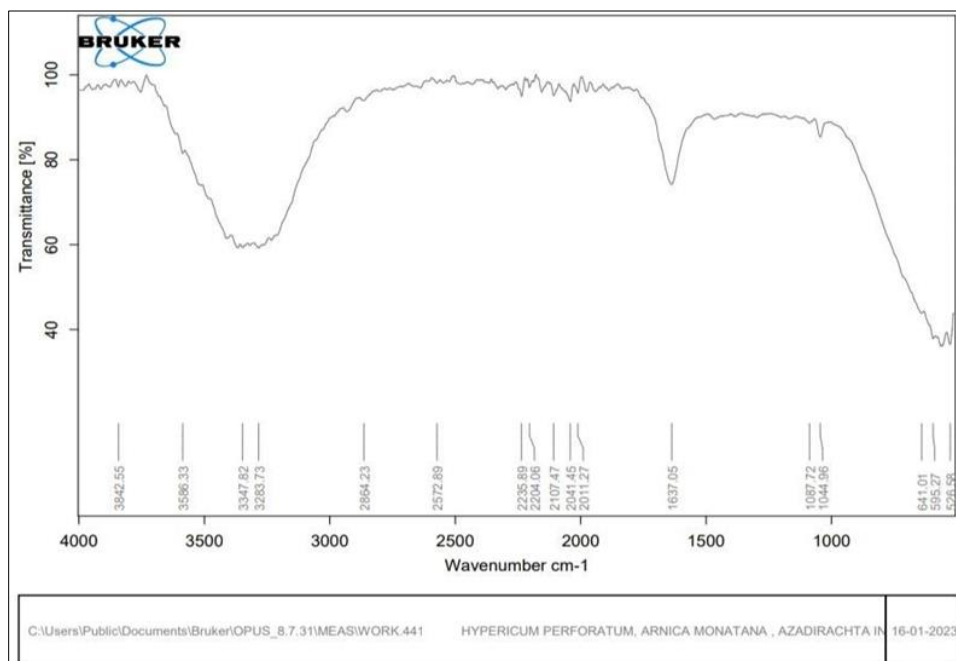
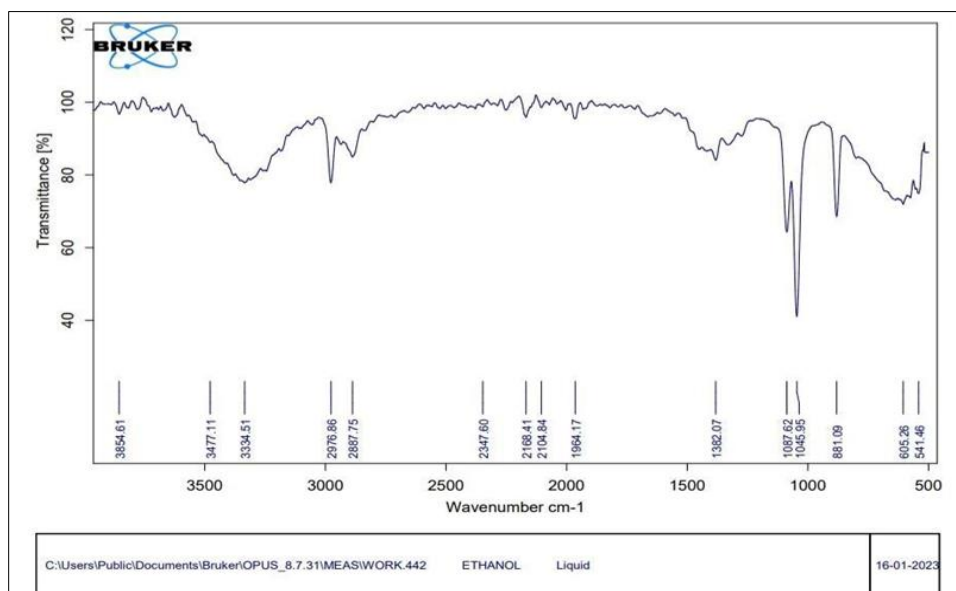


Fig 15: Maximum Transmission of *Azadirachta indica* Lotion (Aqueous Solution)





**Fig 16:** Maximum Transmission of *mixed variety of Hypericum perforatum lotion + Arnica montana lotion + Azadirachta indica Lotion (Aqueous Solution)*



**Fig 17:** Maximum Transmission of Ethanol

## Conclusion

Formulation of *mixed variety of Azadirachta indica- Q + Arnica montana- Q + Hypericum perforatum- Q* Lotion gives a good result in quality control done by the UV- visible spectrophotometer and FTIR as compare to individual lotions.

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