



**BIOMEDICAL RESEARCH AND INNOVATION CENTER [BRIC-MIST]  
MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY**


Mirpur Cantonment Dhaka- 1216, Bangladesh,  
EXCHANGE: 8031111, FAX: 88-02-9011311, Website: [www.mist.ac.bd](http://www.mist.ac.bd), E-mail: [bric.bme@bme.mist.ac.bd](mailto:bric.bme@bme.mist.ac.bd)

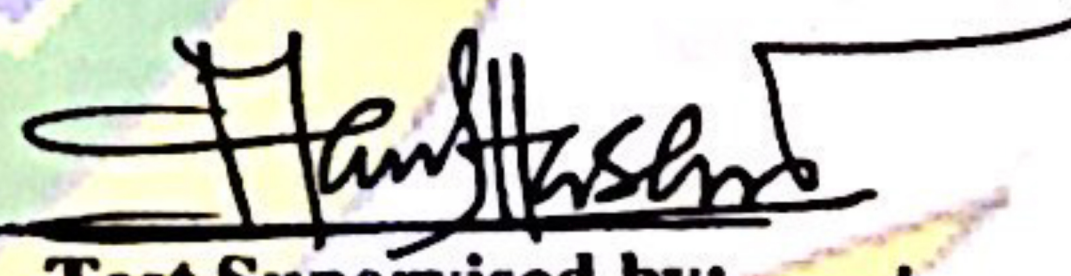
**Sample Test Report**

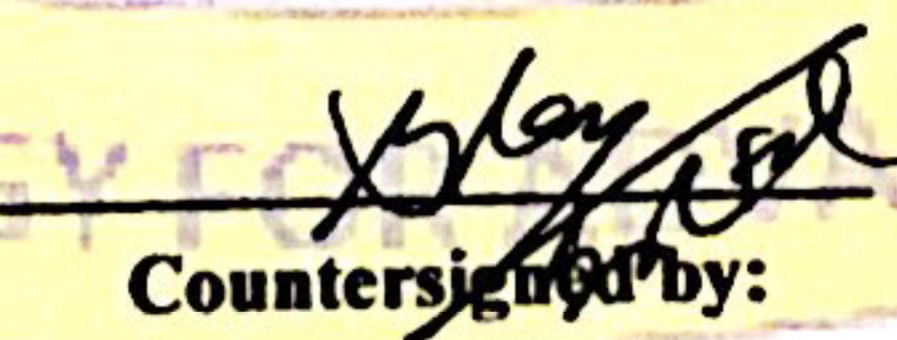
Page 1 of 3

<b>Serial No</b> BME-00101	<b>Lab Name</b> Biochemistry Lab, BME Dept., MIST	<b>Report Delivery Date</b> 26 October 2024
<b>Name of the Client</b>	Leeings Bd	<b>Test Performance Date</b> 24 October 2024
<b>Contact Person</b> (Name & Designation)	Biprodab Mogumdar Researcher	<b>Sample Receiving Date</b> 17 October 2024
<b>Address of the Clients</b> (Including Tel, Fax, Email)	Department of Applied Chemistry and Chemical Engineering (ACCE), BSMRSTU, Bangladesh Phone: +8801804193985, E-mail: <a href="mailto:biprodabbsmrstu@gmail.com">biprodabbsmrstu@gmail.com</a>	
<b>Product</b>	Liquid Sample	
<b>Product Description</b> (composition)	Ginger oil, Onion oil, Clove oil, cardamom oil, Lemon Fragrance, Dimefluthrin, Water	
<b>User Sample ID</b>	MSQ-1	

S/N	Test Type	Method/ Instrument	Compounds	Rmks
01	Chemical Compound Analysis	FTIR	Dimefluthrin	
			1,8- cineole	
			Eugenol	
			Flavonoids	
			Gingerols	
			Zingerone	

  
**Test Conducted by:**  
Md. Tobibul Islam  
Lecturer  
Dept of Biomedical Engineering  
Military Institute of Science and Technology (MIST)  
Mirpur Cantonment, Dhaka-1216

  
**Test Supervised by:**  
Lt Col Md Marul Hasan, PhD  
Secretary, CATS-MIST (BME)  
BME Dept, MIST

  
**Countersigned by:**

Colonel Mohammad Shariful Islam, psc  
Director, CATS-MIST (BME)  
BME Dept, MIST



**Note:**

- The result reported here pertains only to the sample received in the laboratory.
- The precision & accuracy are defined only for the laboratory process.
- The result should not be reproduced partly or fully without prior approval of the laboratory.



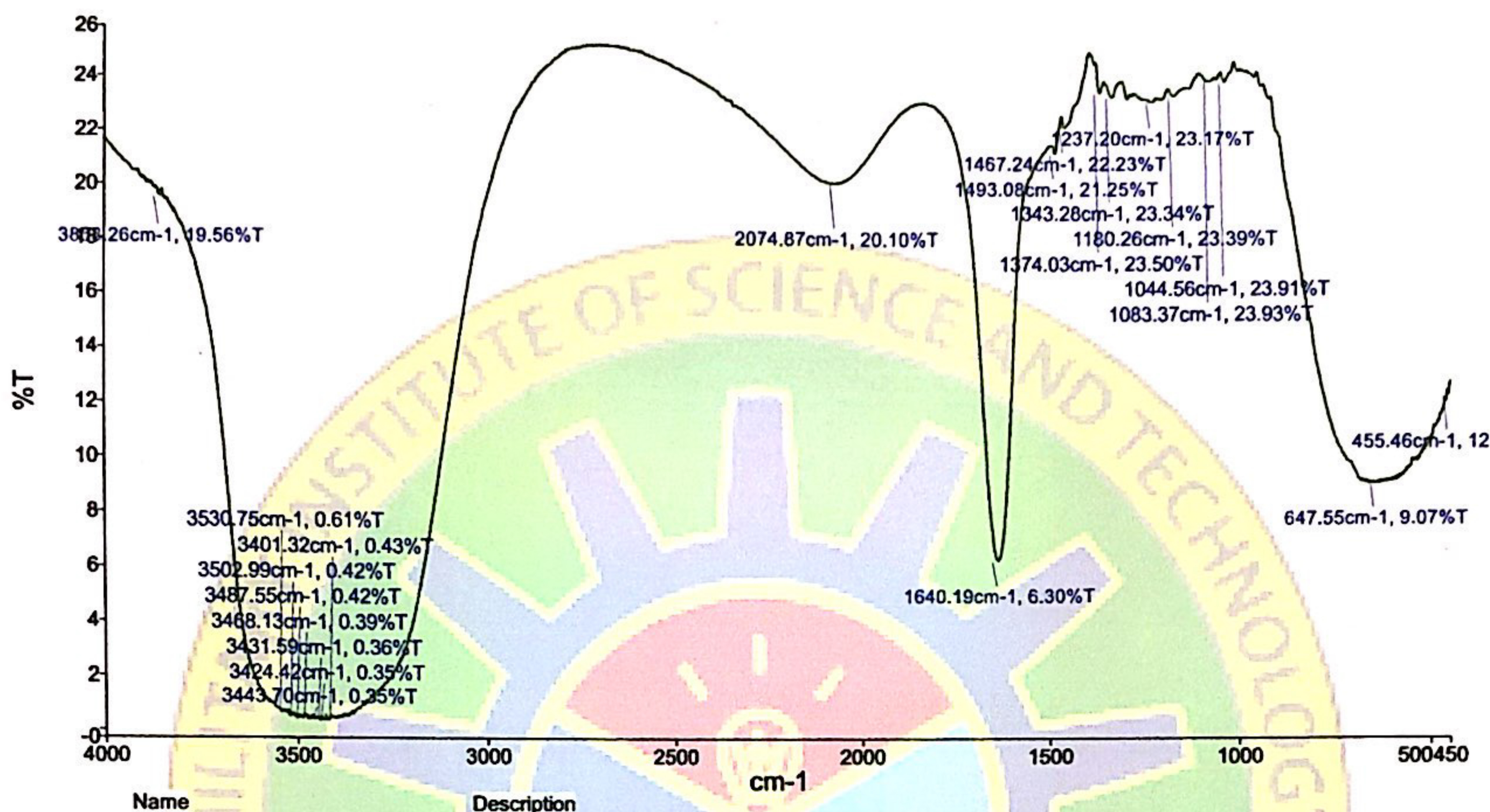


**BIOMEDICAL RESEARCH AND INNOVATION CENTER [BRIC-MIST]  
MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY**

Mirpur Cantonment Dhaka- 1216, Bangladesh,  
EXCHANGE: 8031111, FAX: 88-02-9011311, Website: [www.mist.ac.bd](http://www.mist.ac.bd) , E-mail: [bric.bme@bme.mist.ac.bd](mailto:bric.bme@bme.mist.ac.bd)

**Sample Test Analysis**

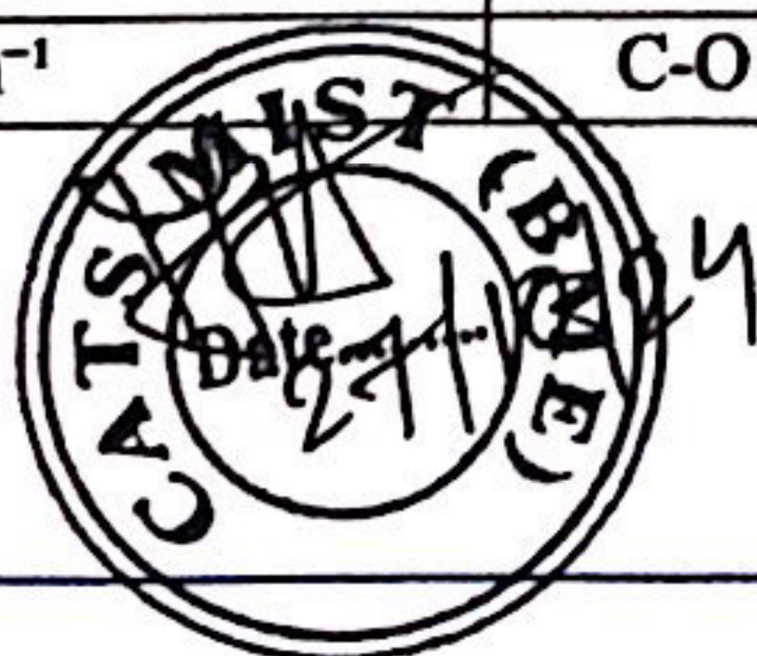
Page 2 of 3



**Figure 1: FTIR spectra curve**

**Table 1: Analysis of the peak location and shape of the IR bands of the main chemical functional groups of the test sample from FTIR spectra curve**

S/N	Peak Wavenumber	Functional group	Compounds
1.	1500–1600 cm <sup>-1</sup>	C=C Stretching (Aromatic Ring)	Dimefluthrin
	1000–1300 cm <sup>-1</sup>	C-O Stretching (Ester Group)	
	1350–1470 cm <sup>-1</sup>	C-H Bending (Aliphatic and Aromatic)	
	700–900 cm <sup>-1</sup>	C-H Bending (Aromatic Ring)	
2.	1350–1470 cm <sup>-1</sup>	C-H Bending (Aliphatic)	1,8- cineole
	1000–1150 cm <sup>-1</sup>	C-O-C Stretching (Ether)	
	950–1200 cm <sup>-1</sup>	C-C Stretching (Cyclic Ring)	
3.	3200–3600 cm <sup>-1</sup>	O-H Stretching (Phenolic Group)	Eugenol
	1450–1600 cm <sup>-1</sup>	C=C Stretching (Aromatic Ring)	
	1200–1300 cm <sup>-1</sup>	C-O Stretching (Phenolic Group)	
4.	1620–1720 cm <sup>-1</sup>	C=O Stretching (Carbonyl Group)	Flavonoids
	1350–1470 cm <sup>-1</sup>	C-H Bending (Aromatic and Aliphatic)	
	1100–1200 cm <sup>-1</sup>	C-O-C ether bonds.	
	1000–1300 cm <sup>-1</sup>	C-O Stretching (Phenolic or Ether Groups)	



**Note:**

- The result reported here pertains only to the sample received in the laboratory.
- The precision & accuracy are defined only for the laboratory process.
- The result should not be reproduced partly or fully without prior approval of the laboratory.





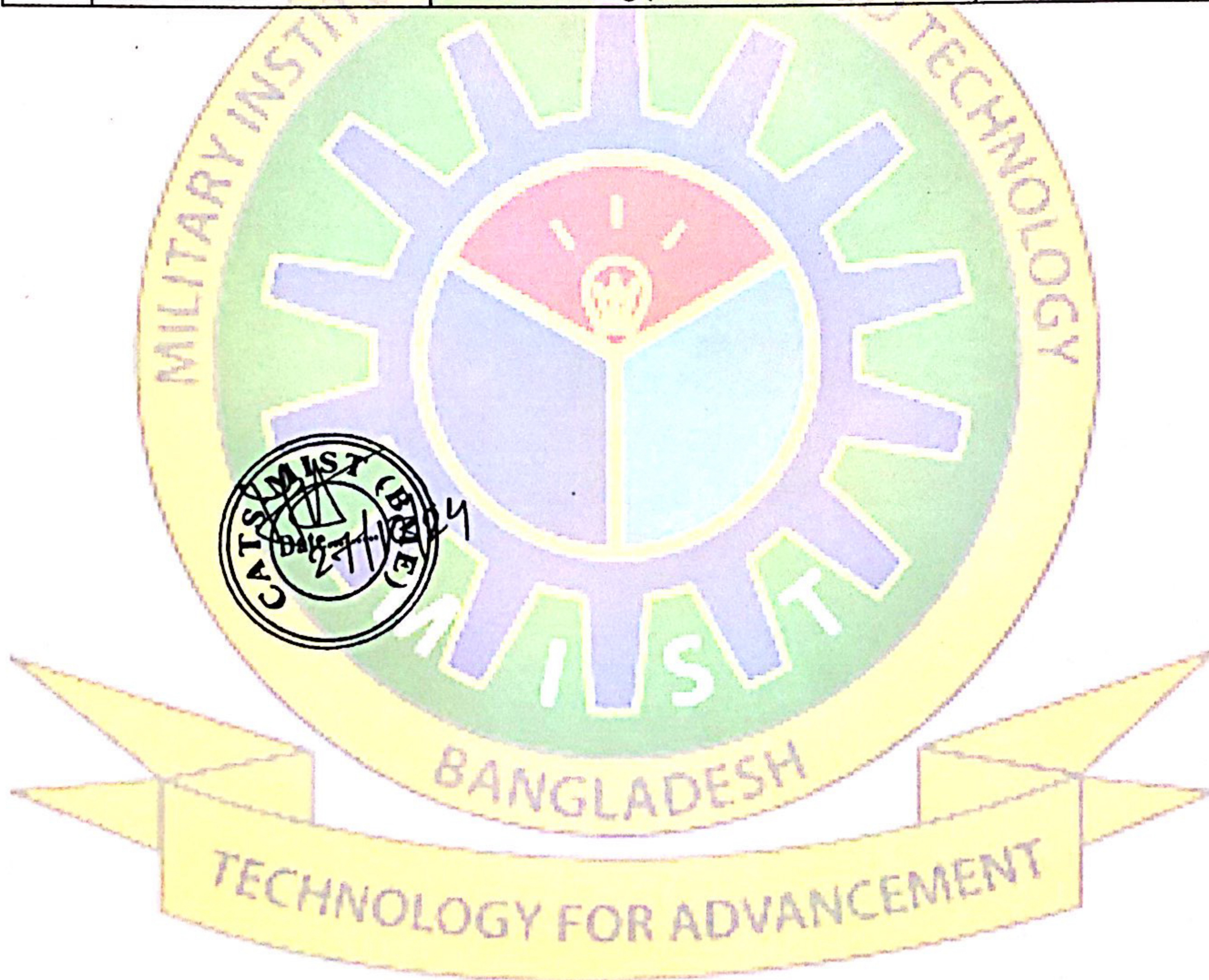
**BIOMEDICAL RESEARCH AND INNOVATION CENTER [BRIC-MIST]  
MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY**

Mirpur Cantonment Dhaka- 1216, Bangladesh,  
EXCHANGE: 8031111, FAX: 88-02-9011311, Website: [www.mist.ac.bd](http://www.mist.ac.bd), E-mail: [bric.bme@bme.mist.ac.bd](mailto:bric.bme@bme.mist.ac.bd)

**Sample Test Analysis**

Page 3 of 3

5.	3200–3600 cm <sup>-1</sup>	O-H Stretching (Hydroxyl Groups)	Gingerols
	Aromatic: 3000–3100 cm <sup>-1</sup> Aliphatic: 2800–3000 cm <sup>-1</sup>	C-H Stretching (Aromatic and Aliphatic)	
	1650–1750 cm <sup>-1</sup>	C=O Stretching (Carbonyl Group)	
	1000–1300 cm <sup>-1</sup>	C-O Stretching (Phenolic and Ether Groups)	
6.	3200–3600 cm <sup>-1</sup>	O-H Stretching (Hydroxyl Group)	Zingerone
	1650–1750 cm <sup>-1</sup>	C=O Stretching (Ketone Group)	
	1350–1470 cm <sup>-1</sup>	C-H Bending (Aromatic and Aliphatic)	



**Note:**

- The result reported here pertains only to the sample received in the laboratory.
- The precision & accuracy are defined only for the laboratory process.
- The result should not be reproduced partly or fully without prior approval of the laboratory.