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 , E-mail: bric@bme.mist.ac.bd

Sample Test Report

Serial No BME-00105	**Lab Name** Biochemistry Lab, BME Dept , MIST	**Report Delivery Date** 26 May 2026
Name of the Client	Department of Applied Chemistry and Chemical Engineering (ACCE), BSMRSTU, Bangladesh	**Test Performance Date** 12 May 2026
Contact Person (Name & Designation)	Biprodab Mogumdar Researcher	**Sample Receiving Date** 07 May 2026
Address of the Clients (Including Tel, Fax, Email)	Department of Applied Chemistry and Chemical Engineering (ACCE), BSMRSTU, Bangladesh Phone: +8801804193985, E-mail: biprodabbsmrstu@gmail.com	
Product	Insect Liquid Sample	
Product Description (composition)	Water, Ginger oil, Onion oil, Clove oil, Chinaberry oil, Peppermint oil, Chrysanthemum oil, Neem oil, Glycol	
User Sample ID	MSQ-002	

S/N	Test Type	Method/ Instrument	Compounds	Rmks
01	Chemical Compound Analysis	FTIR	Water, Glycol, Neem oil	
			Essential Oils, Ginger oil, Onion oil	
			Aromatic Rings (Clove/Cinnamon Oil, Chrysanthemum), Amides	
			Phenolic compounds	

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

CATS-MIST (BME) Date 27/4/26

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

Sample Test Analysis

Note:

a. The result reported here pertains only to the sample received in the laboratory.
b. The precision & accuracy are defined only for the laboratory process.
c. 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 , E-mail: bric@bme.mist.ac.bd

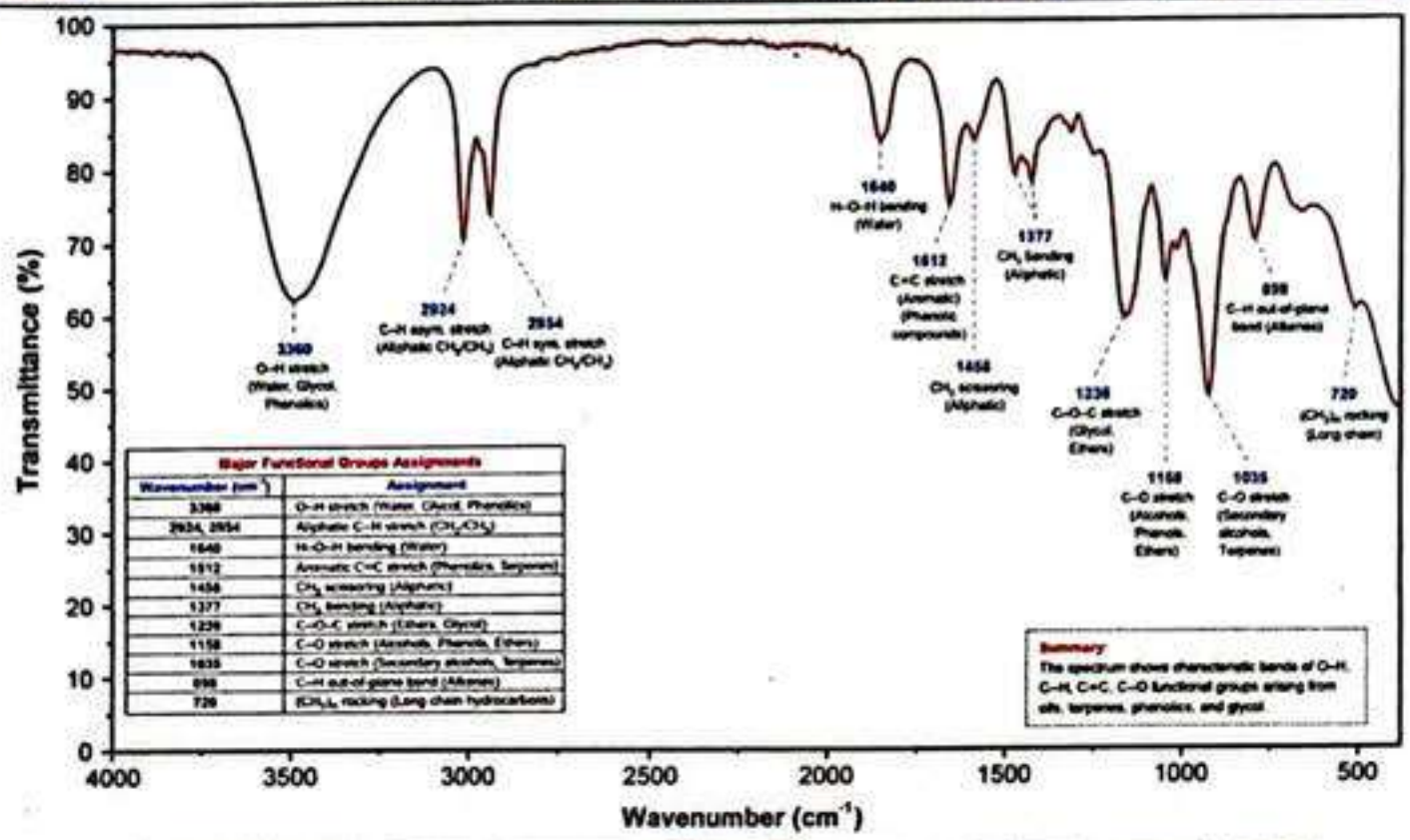

Figure 1: FTIR spectra curve

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

Functional Group	Wavenumber (cm^{-1})	Intensity / Shape
O–H stretching (Water, Glycol, Phenolic compounds)	3360	Strong, broad
C–H asymmetric stretching (CH_2/CH_3)	2924	Strong, sharp
C–H symmetric stretching (CH_2/CH_3)	2854	Medium, sharp
H–O–H bending (Water)	1640	Medium
Aromatic C=C stretching (Eugenol, Terpenes)	1512	Medium
CH_2 scissoring vibration	1456	Medium
CH_3 bending vibration	1377	Weak to medium
C–O–C stretching (Ether/Glycol)	1236	Strong
C–O stretching (Alcohols, Phenols, Ethers)	1158	Strong
C–O stretching (Secondary alcohols, Terpenoids)	1035	Strong
=C–H out-of-plane bending (Alkenes)	898	Weak
$(CH_2)_n$ rocking (Long-chain hydrocarbons)	720	Weak

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