PP-08

Isolation and characterization of methanolic extract of *Ocimum basilicum* L seed

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INTRODUCTION

Ocimum basilicum **seed (Takhmaria /subja /sweet basil), family Lamiaceae most widely used in drinks in India, and Asian countries such as arabic falooda or sherbet. Seed of plant shows antimicrobial activity, invitro antioxidant, aphrodisiac, diuretic and anti dysenteric actions. basil seeds were used to relieve indigestion, sore throat, constipation, diarrhea, slow down the body process of converting carbohydrates into sugars, also contributing to weight loss and appetite. That accounts for the feeling of fullness lasting longer and can be useful for both weight loss and diabetes. The mucilaginous gel that forms around the seeds when they are soaked acts as an emollient, which smothes mucous membranes. It can be used to relieve constipation and diarrhea, appetite suppressant during weight loss programs, when eaten (or drunk) before meals and also consumed during the summer time, as it is one of the best body coolant. Traditionally, it is used for the treatment of pains and respiratory tract infections diabetes, asthma and decrease platelet aggregation.**

Morphological characters of Ocimum basilicum seed:

Colour: Dark brown to blackish

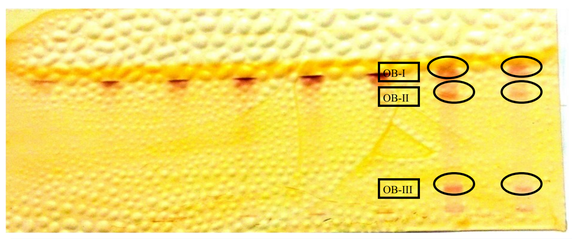
Odour: Characteristic

Taste: Pungent

Size: 0.3-0.4 mm length

0.2-0.3 mm width

Ocimum basilicum **seed**



Different concentrations of standard apigenin and methanolic seed extracts showing spot of OB-I ,OB-II, OB-III under UV light on developed HPTLC plate

The column was packed with silica gel-H(60-120#, LOBA)slurry of silica gel was added into glass column (45 cm length and 3 cm width)

↓

Eluted with a solvent system of toluene-acetone –formic acid system 5: 4: 1 v/v/v until all fraction gets collected

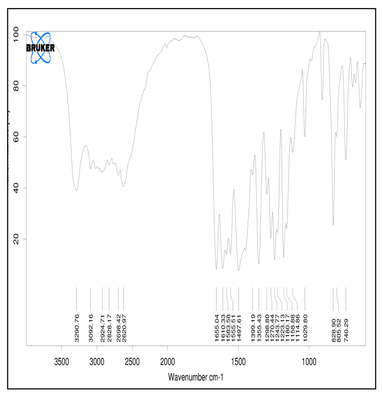
↓

Isolated compound resolved single spot at R_F 0.72, 0.65 & 0.28 respectively. All fractions were combined and concentrated .Compound obtain using column chromatography is designated as OB-I, OB-II and OB-III.

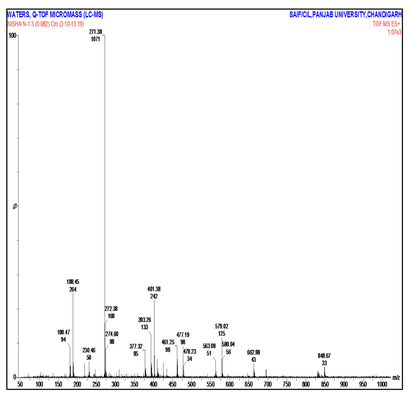
Isolation procedure of flavanoid and phenolic compounds

Compound-I

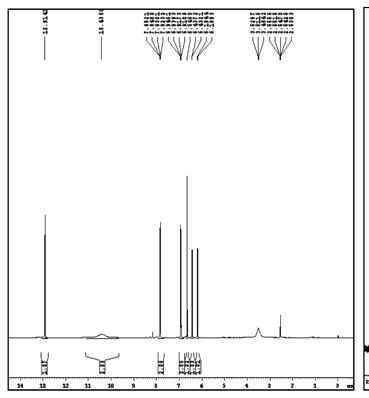
Yellow crystalline powder, Molecular weight 270.24 g/mole;1H NMR (400 MHz, DMSO): 12.91, 10.43, 7.85 , 6.94 , 6.64 , 6.43 and 6.19; ^{13}C NMR (400 MHz, DMSO-d6): δ 181.59 ,163.99 , 163.62, 161.48, 161.02, 157.24 , 128.03 ,121.19 ,115.81, 103.73, 102.72, 98.76 and 93.75.Molecular ion peak at m/z =271.38 $[M+H]^+$. The molecular formula of apigenin is $C_{15}H_{10}O_5$ (4,5,7-trihydroxyflavone).



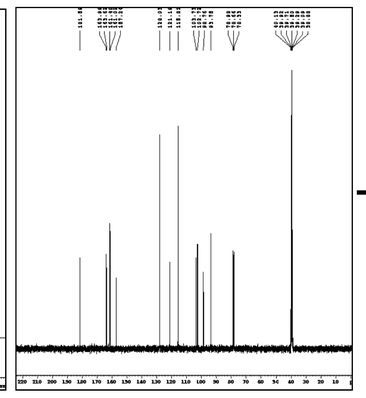
FT-IR spectra of OB-I



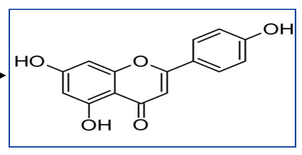
Mass spectra of OB-I



H[1]NMR Spectra of OB-I



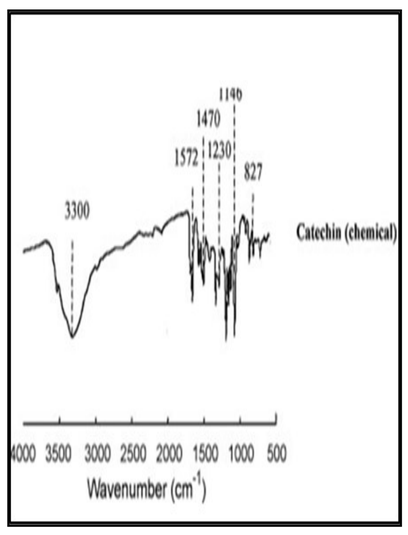
C[13]NMR Spectra of OB-I



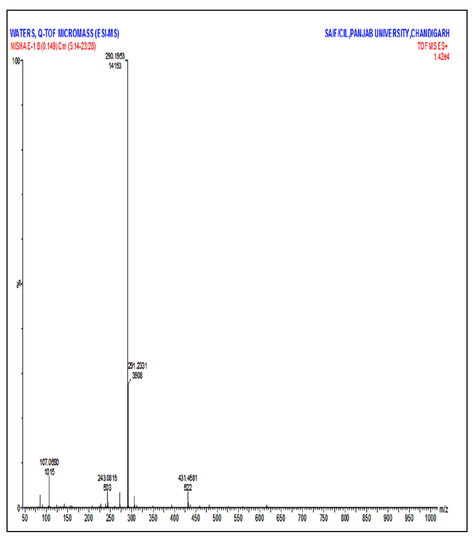
Apigenin

Compound-II

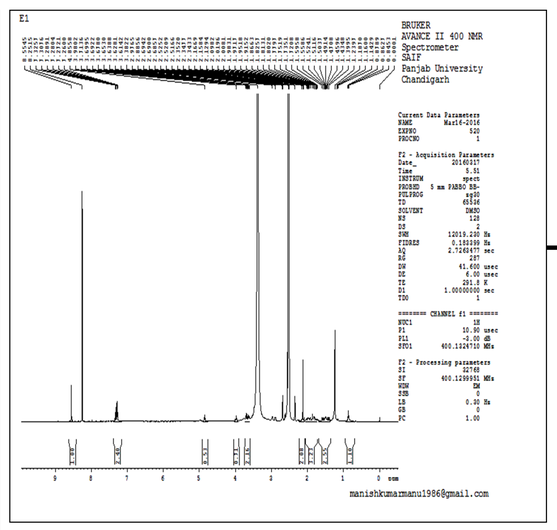
Pale yellow amorphous powder, Molecular weight 290.27 g/mol ;1H-NMR (DMSO-d6) δ: 2.35 (1H, dd, J = 15.9, 7.8 Hz, H-4), 2.66 (1H, dd, J = 15.9, 4.8 Hz, H-4), 3.81 (1H, m, H-3), 4.48 (1H, d, J = 7.3 Hz, H-2), 5.69 (1H, s, H-8), 5.89 (1H, s, H-6), 6.59 (1H, d, J = 7.8 Hz, H-6′), 6.68 (1H, d, J = 7.8 Hz, H-5′), 6.72 (1H, s, H-2′). 13C-NMR (DMSO-d6) δ: 27.8 (C-4), 66.3 (C-3), 81.0 (C-1), 93.8 (C-8), 95.1 (C-6), 99.0 (C-4a), 114.5 (C-2′), 115.0 (C-5′), 118.4 (C-6′), 130.6 (C-1′), 144.8 (C-3′,4′), 155.3 (C-8a), 156.1 (C-5), 156.4 (C-7). Molecular ion peak at m/z =290.18 $[M]^+$. The molecular formula of catechin is $C_{15}H_{14}O_6$.



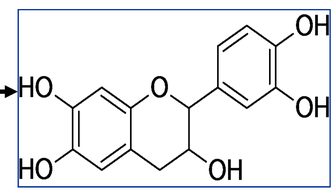
FT-IR spectra of OB-II



Mass spectra of OB-II



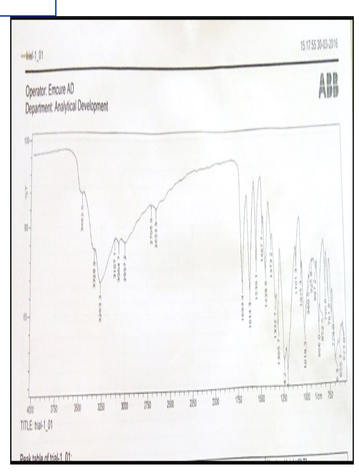
H[1]NMR Spectra of OB-II



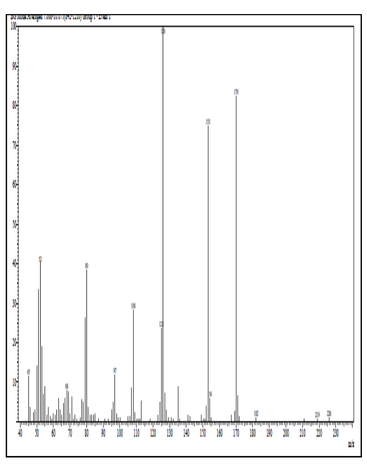
Catechin

Compound-III

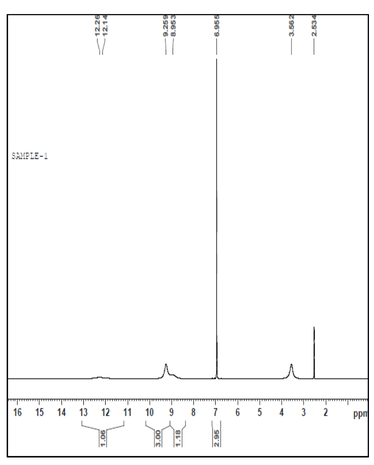
Slightly yellow crystalline compound, Molecular weight 170.11 g/mole ;1H-NMR (DMSO-d6) 6.96 (s, 2H, H-2 and H-6)8.96, 9.25, 12.147, 12.26, 13C-NMR (DMSO-d6) 167.45 (C-1),145.67 (C-4 and C-6),137(C-5),120.37 (C-2),108.66 (C-3 and C7).Molecular ion peak at m/z =170.9$[M+H]^+$. The molecular formula of Gallic acid is $C_7H_6O_5$.



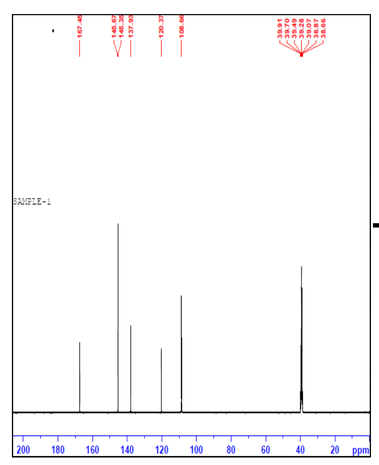
FT-IR spectra of OB-III



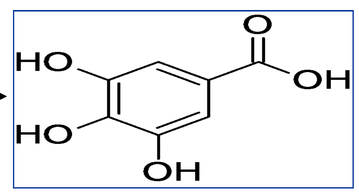
Mass spectra of OB-III



H[1]NMR Spectra of OB-III



C[13]NMR Spectra of OB-III



Gallic acid

Conclusion

Chemical investigation of methanol extract of *Ocimum basilicum* L seed resulted the isolation and identification of two phenolic compounds gallic acid, catechin, and one flavonoids apigenin by column chromatography using toluene–acetone–formic acid as a solvent. The structures of these compounds were confirmed by Chromatographic, IR, MS, ^{1}H- NMR and ^{13}C-NMR spectral data. Above three compounds have been reported first time from methanolic extract seed of *Ocimum basilicum* seed.

References

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"This Poster is presented at 5th BIENNIAL INTERNATIONAL CONFERENCE ON DRUG DISCOVERY FROM NATURAL PRODUCTS AND TRADITIONAL MEDICINES (DDNPTM-2016) Organized NIPER, Mohali during 18-20th November, 2016".