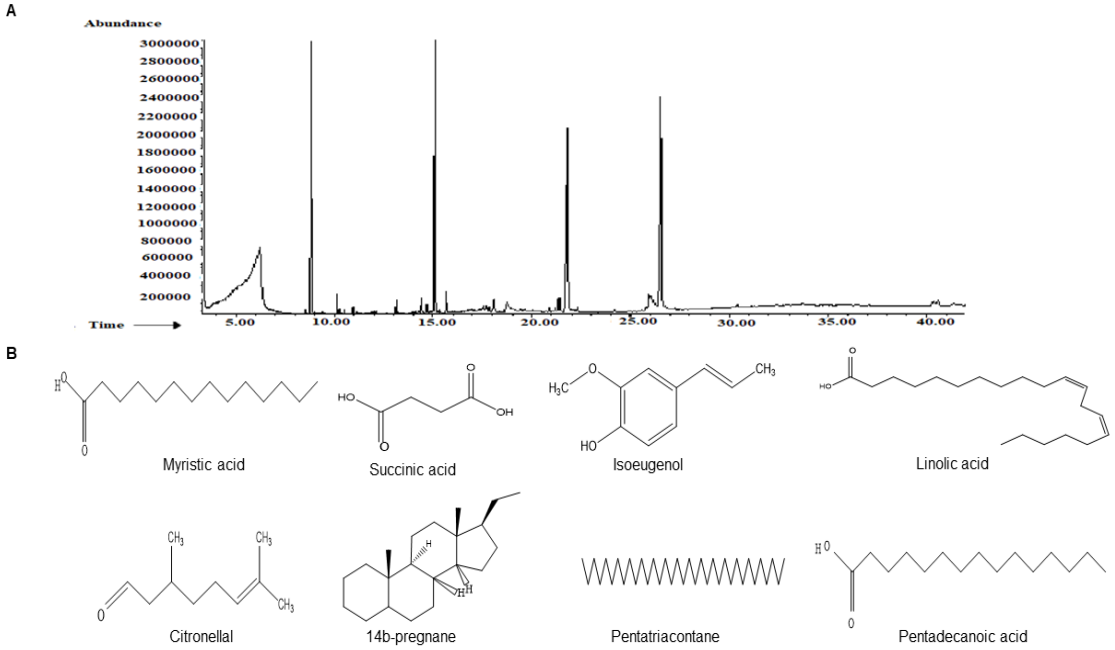


**Figure S1.** (A) GCMS chromatogram of MPME. (B) Chemical structure of 8 reported antidiabetic phytocompounds identified based on the retention time and peak area, namely Myristic acid (18.095 retention time and 0.80% peak area), Succinic acid (10.153 retention time and 0.76% peak area), (18.095 retention time and 0.80% peak area), Isoeugenol (14.691 retention time and 0.80% peak area), Pentadecanoic acid (19.658 retention time and 0.36% peak area), Oleic Acid (30.449 retention time and 0.19 % peak area), Citronellal (20.361 retention time and 0.36% peak area), *Pentatriacontane* (19.846 retention time and 0.02% peak area), 14b-pregnane (24.064 retention time and 0.02% peak area).

**Table S1.** Physiochemical parameters of MPME**.**

| S.no. | Parameters | Percentage (%) |
|---|---|---|
| 1 | Total ash value | 8 |
| 2 | Acid insoluble ash | 1.44 |
| 3 | Water-soluble ash | 1.36 |
| 4 | Moisture content | 1.25 |

**Table S2.** HPTLC fingerprint of MPME at 254 nm and 366 nm.

| S.No. | $R_f$ | MPME | |
|---|---|---|---|
| | | **254 nm** | **366 nm** |
| 1. | 0.04 | + | - |
| 2. | 0.24 | + | + |
| 3. | 0.40 | + | + |
| 4. | 0.44 | + | + |
| 5. | 0.47 | + | + |
| 6. | 0.51 | + | - |
| 7. | 0.54 | + | + |
| 8. | 0.57 | + | - |
| 9. | 0.66 | + | - |
| 10. | 0.77 | + | + |
| 11. | 0.87 | + | - |
| **Total number of metabolites** | | **11** | **06** |

**Table S3.** Linear regression data for calibration plots of the analyzed marker using the proposed HPTLC method.

| Marker | Quercetin |
|---|---|
| Solvent system | Toluene: ethylacetate: formic acid: methanol (6:3:0.5:0.5) |
| Wavelength | 254 nm |
| Retention factor ($R_f$) | 0.47± 0.002 |
| Linearity range (ng/spot) | 200-4000 |
| Regression equation | Y=1.066x + 458.5 |
| Regression coefficient ± SD | 0.993±0.011 |
| Slope | 1.066 |
| LOD (ng/spot) | 13.65 |
| LOQ (ng/spot) | 41.39 |
| **Precision (% RSD)** | |
| Intra-day | 0.44-0.79 |
| Inter-day | 1.44-1.66 |

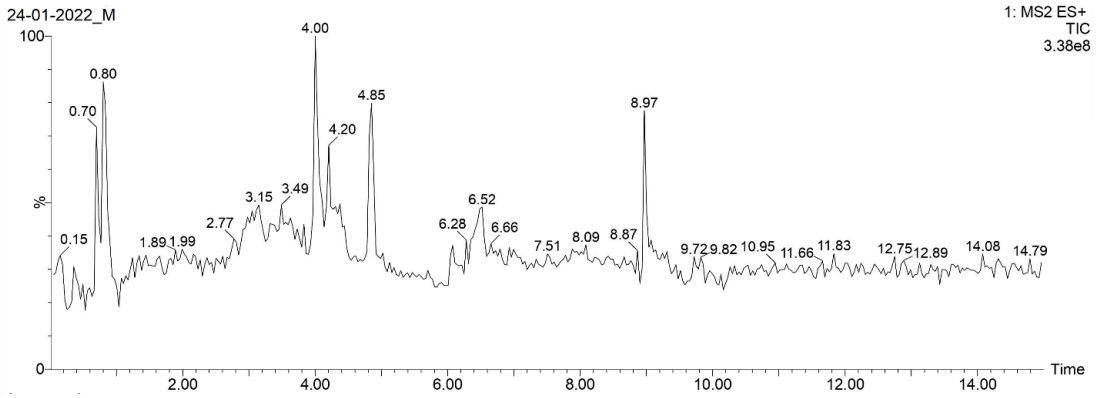


**Figure S2.** Ultra-performance liquid chromatography-mass spectroscopy (UPLC-MS) chromatogram.