
Abstract

Essential oil is aromatic in nature, contains a lot of phytochemicals and owing to its aromatic nature it gives pleasant odor to be utilized for the fragrances purpose. Here essential oil extract of ginger, cinnamon and lemon leaves was extracted by hydrodistillation using Clevenger apparatus and then solvent extraction method utilized in order to get the complete extraction process and main product. Anti-oxidant activity of the essential oil extract of ginger, cinnamon and lemon leaves was performed by the solvents ABTS and DPPH. Essential oil extract showed the %inhibition 0.710 and 0.699 for ABTS⁺ radical and %inhibition for DPPH radical was 0.956 and 0.945. Anti-bacterial activity performed by well diffusion method against *Bacillus subtilis* gram (+ve) and *Streptococcus pyogenes* gram (-ve) & gram (+ve), displayed inhibition zones which were 16.75mm, 3mm, 7mm, 4.75mm, 7.25mm. GC-MS results displayed the presence of following compounds in the essential oil of ginger, cinnamon and lemon leaves were Phthalic acid, diethyl ester (cinnamon), 2-Decenoic acid, methyl ester (ginger), 1-Docosene (lemon or lemon leaves), Hexadecanoic acid, 2,3-dihydroxypropyl ester (ginger+lemon leaves), Cis-9-Hexadecenal (ginger), Hexadecanoic acid, 1-(hydroxymethyl)-1,2-ethanediyl ester (lemon or lemon leaves), Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester (ginger), 1,2-Benzenedicarboxylic acid, diisooctyl ester (cinnamon). This essential oil extract of ginger, cinnamon and lemon leaves displayed very positive results for anti-bacterial and anti-oxidant activity therefore could utilize for many benefits and purposes good for human health betterment and for helping the mankind. Although some compounds name still unknown which need to identify.