Mol Biol 2018, Volume 7
DOI: 10.4172/2168-9547-C2-006

3rd International Conference on
Molecular Biology & Nucleic Acids
August 27-28, 2018 | Toronto, Canada

Haemolytic effect and structural assessment of different extracts of *Cucumis melo* L. var. *Inodorus* (sweet melon) fruit on human erythrocytes using spectroscopic and spectrometric methods

Joshua Parker E,Onwubiko Henry A and Boyi Richard-Harris N
University of Nigeria, Nsukka

Cucumis melo L. var. *inodorus* (sweet melon or honeydew melon) is one of the most widely cultivated and consumed fruits in the world due to its nutritional and medicinal value. The fruit is widely cultivated (usually in backyard gardens) and consumed in the Northern parts of Nigeria, yet very little have been done especially in the area of its haemolytic effect on human erythrocytes. In this study, hemolytic activity of the aqueous extract and ethanol extract of *C. melo* L. var. *inodorus* mesocarp, epicarp, and ethanol extract of the seeds were screened individually against normal human erythrocytes. Hemolytic activity of the fruit is expressed in percentage hemolysis and reported as means ± standard deviation of triplicates. All the samples exhibited no hemolytic effect toward human erythrocytes when the concentration was varied from 125 µg/ml to 1000 µg/ml. The percentage haemolysis obtained for all the extracts at the concentrations 125, 250, 500 and 1000 µg/ml respectively were: M ETH 0.011, 0.018, 0.015 and 0.010%; M AQ 0.119, 0.123, 0.064 and 0.087%; P AQ 0.046, 0.143, 0.129 and 0.152%; P ETH 0.135, 0.177, 0.263 and 0.242%; and S ETH 0.062, 0.195, 0.286 and 0.400%. These values were statistically considered not significant when compared to zero value ($p > 0.05$). Studies of the UV-Vis spectra of all test samples at 250 µg/ml (Test tubes 3b, 4b, 5b, 6b and 7b) and control (Test tube 1) showed similar spectra patterns when scanned from 400 – 700 nm wavelengths, with Soret peaks arising in the 413 – 415 nm region and two other smaller peaks at 540 nm and 577 nm showing the maximum absorption for haemoglobin fully saturated with oxygen. The FTIR Spectroscopy results obtained when all the samples (whole fruit parts: epicarp, mesocarp and seeds; extracts: P AQ, P ETH, M AQ, M ETH and S ETH; and the reaction mixtures: Test tubes 3d, 4d, 5d, 6d, and 7d) analyzed generated several peaks. The broad peaks at 3295.0 cm-1 (ranging from 3200-3600 cm-1) are attributed to OH stretch, suggesting the functional group's alcohols and phenols. The band at 2926.0 cm-1 (ranging from 3000-2850 cm-1) is attributed to C-H stretching vibrations indicating the presence of alkanes. The band at 1654.9 cm-1 (ranging from 1680-1640 cm-1) is ascribed to C=C stretching vibration of alkenes. The band at 1580.4 (ranging from 1650-1580 cm-1) is due to N-H bending vibration indicating 1° amines. The peak 1416.4 cm-1 (ranging from 1500-1400 cm-1) is due to C-C in-ring stretch of aromatics. The peak 1080.9 cm-1 (ranging from 1320-1000 cm-1) is ascribed to a C-O stretch of alcohols, carboxylic acids, esters, ethers. The band 879.7 cm-1 (ranging from 900 – 675 cm-1) is attributed to C-H aromatics. The GC-MS analysis of the aqueous extract of *C. melo* L. var. *inodorus* epicarp (P AQ) extricated 31 compounds indicating the presence of these phytochemicals in a high constituent. the most abundant in terms of compound percentage area (%Area) in relation to the total percentage area of total compounds separated were 9,17- Octadecadienal (25.07%), Oleic acid (16.24%), trans-13-octadecenoic acid (7.33%), 6-Octadecenoic acid (Petroselinic acid, 6.79%), γ-Tocopherol (vitamin E. derivative, 1.47%) and Dianhydromannitol (0.29%). In the ethanol extract of the same epicarp (P ETH) 15 compounds were eluted: cis-Vaccenic acid (64.42%), Isopropyl linoleate (22.61%), 6-Octadecenoic acid (Petroselinic acid) (4.17%), Oleic acid (3.22%) and Cyclopentadecanone (1.47%). GC-MS of aqueous extract of *C. melo* L. var. *inodorus* mesocarp (M AQ) separated and identified 36 compounds with the most abundant being; Oleic acid (30.30%), Isopropyl linoleate (28.79%), Glycidyl palmitate (6.90%), (R)-(-)-14-Methyl-8-hexadecyl-1-ol (2.60%) and 9,12-Octadecadienoic acid (Z,Z)- (Linoleic acid, 2.43%). In the mesocarp ethanol extract (M ETH), the following compounds were identified in order of increasing percentage area 9,17-Octadecadienal (62.30%), n-Propyl 9,12-octadecadienoate (3.85%), 2R,3S-9-[1,3,4-Trihydroxy-2-butoxy methyl]guanine (3.57%), Oleic acid (3.04%). The seed ethanol extract (S ETH), 9,12-Octadecadienoic acid (Z,Z)- (Linoleic acid, 58.74%), 9,17-Octadecadienal (10.28%), Glycidyl palmitate (3.15%), Glycidyl oleate (2.63%), 2-Chloroethyl linoleate (1.02%) were the most abundant of the 35 compounds identified.

parker.joshua@unn.edu.ng

Notes: