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Determination of Haemolytic Effect and Spectral Analysis Using Gas Chromatography Mass Spectrometry (GC-MS), Fourier Transform Infrared (FTIR) and Ultraviolet Visible (UV-Vis) Spectroscopy of Different Extracts of *Cucumis melo L.* var. *inodorus* (Sweet Melon) Fruit

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Introduction: The concept that fruits and vegetables contribute to a person's wellbeing is as old as Hippocrates, the father of medicine, who more than 2000 years ago told his patients "let your food be your medicine and your medicine be your food". Today, this same philosophy with regard to fruits and vegetables being more than just nutrition but medicine as well is experiencing rejuvenation. Indeed, a positive correlation has been reported between fruit consumption and the decreased risk of several chronic diseases including obesity, cardiovascular disease, and certain types of cancer etc. (Boeing *et al.,* 2012; Jansen *et al.,* 2011). The study is aimed at determining the haemolytic effect of *Cucumis melo L.*var. *inodorus* (sweet melon or honeydew melon) on human erythrocytes and to study this effect by different spectral analyses.

Experimental Design: In this study, haemolytic activity of the aqueous extract and ethanol extract of *C. melo L.* var. *inodorus* mesocarp, pericarp and ethanol extract of the seeds were screened individually against normal human erythrocytes.

Test tube 1: 0.5ml erythrocyte (RBC) suspension + 0.5ml SPBS (minimal control)
Test tube 2: 0.5ml erythrocyte (RBC) suspension + 0.5ml distilled water (maximal control)
Test tube 3a: 0.5ml erythrocyte suspension + 0.5ml M AQ at 125µg/ml in SPBS
Test tube 3b: 0.5ml erythrocyte suspension + 0.5ml M AQ at 250µg/ml in SPBS
Test tube 3c: 0.5ml erythrocyte suspension + 0.5ml M AQ at 500µg/ml in SPBS
Test tube 3d: 0.5ml erythrocyte suspension + 0.5ml M AQ at 1000µg/ml in SPBS
Test tube 4a: 0.5ml erythrocyte suspension + 0.5ml M ETH at 125µg/ml in SPBS
Test tube 4b: 0.5ml erythrocyte suspension + 0.5ml M ETH at 250µg/ml in SPBS
Test tube 4c: 0.5ml erythrocyte suspension + 0.5ml M ETH at 500µg/ml in SPBS
Test tube 4d: 0.5ml erythrocyte suspension + 0.5ml M ETH at 1000µg/ml in SPBS
Test tube 5a: 0.5ml erythrocyte suspension + 0.5ml P AQ at 125µg/ml in SPBS
Test tube 5b: 0.5ml erythrocyte suspension + 0.5ml P AQ at 250µg/ml in SPBS
Test tube 5c: 0.5ml erythrocyte suspension + 0.5ml P AQ at 500µg/ml in SPBS
Test tube 5d: 0.5ml erythrocyte suspension + 0.5ml P AQ at 1000µg/ml in SPBS
Test tube 6a: 0.5ml erythrocyte suspension + 0.5ml P ETH at 125µg/ml in SPBS
Test tube 6b: 0.5ml erythrocyte suspension + 0.5ml P ETH at 250µg/ml in SPBS
Test tube 6c: 0.5ml erythrocyte suspension + 0.5ml P ETH at 500µg/ml in SPBS
Test tube 6d: 0.5ml erythrocyte suspension + 0.5ml P ETH at 1000µg/ml in SPBS
Test tube 7a: 0.5ml erythrocyte suspension + 0.5ml S ETH at 125µg/ml in SPBS
Test tube 7b: 0.5ml erythrocyte suspension + 0.5ml S ETH at 250µg/ml in SPBS
Test tube 7c: 0.5ml erythrocyte suspension + 0.5ml S ETH at 500µg/ml in SPBS
Test tube 7d: 0.5ml erythrocyte suspension + 0.5ml S ETH at 1000µg/ml in SPBS

Determination of Haemolytic Activity: *In vitro* haemolytic activity assay was performed by spectrophotometer method (Yang *et al.*, 2005).

Ultraviolet Visible (UV-Vis) Spectroscopy Analysis : UV-Vis spectrophotometric absorbance spectra of reaction mixtures (Test tubes: 3b, 4b, 5b, 6b and 7b) and the control (Test tube 1) were recorded at 400 – 700nm wavelengths using Agilent Technologies Cary 300 UV-Vis Spectrophotometer. Haemoglobin (Hb) behaviour and possible interaction with the different fruit extracts was also observed.

Fourier Transform Infrared (FTIR) Analysis: The mesocarp, pericarp and seeds of the sample, sweet melon and their respective extracts (M AQ, M ETH, P AQ, P ETH, S ETH); reaction mixtures with the highest extract concentration (Test tubes: 3d, 4d, 5d, 6d and 7d) were analysed with Agilent Technologies Cary 630 Fourier Transform Infrared (FTIR) Spectrometer. FTIR spectra were recorded from the range 650 – 4000 cm^{-1} wave number. However, the FTIR spectrometer detected only a very broad band of OH group when analysing the reaction mixtures possibly because of the high volume of water in it; but on allowing a small drop on the Diamond sampling window to dry, several interesting peaks were recorded.

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