SPECTROSCOPICAL DIABETES MANAGEMENT OF ONION

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Received: Aug. 2019 Accepted: Sep. 2019 Published: Oct. 2019

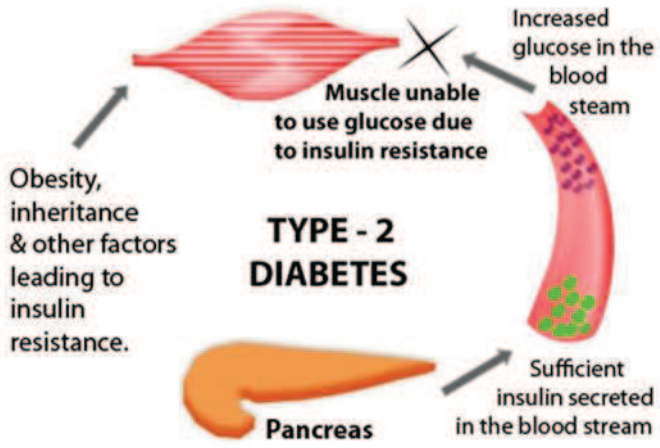
Abstract: Now a day's natural /herbal product are more useful rather than synthetic products because of their high medicinal values, biocompatibility, availability and cheaper cost. The aim of the present paper is to highlight insulin (glyro compound) apart from other functional groups present in onion. This is done with a help of fast, accurate and analytical tool and techniques of Spectroscopy-FTIR. So, that this novelty treatment of finding bioactive compounds like glycogen obtained from the data in a short span can make the diabetic patient to be active by controlling blood sugar levels and have a good diet for a day .

Keywords: FTIR Spectroscopy, Functional Groups, Glycogen, Synthetic.

Introduction: Diabetes is most likely to become the seventh largest killer in the world by the year 2030. A currently affects over 425 million people worldwide, with more than 72.9 million cases of diabetes in India in 2017. In absence of proper care and attention, diabetes may also lead to obesity, kidney failure and heart complications. Diabetics are often asked to maintain a strict diet that is high on fibre-rich foods. Do you know onions may prove to be an ideally best for a healthy diabetes diet? **Present Study has shown that there are carbohydrates, proteins and fats apart from multiple flavonoids which keeps the blood glucose in control and also promote good health and immunity.**

The onion plant (*Allium cepa*), also known as the bulb onion or common onion, is the most widely cultivated from the species of genus Allium. They are pungent when chopped and contain certain chemical substances which irritate the eyes but they are usually served cooked, as a vegetable or part of a prepared savory dish, even can also be eaten raw or used to make pickles or chutneys. The onion plant has been grown and selectively bred in cultivation for at least 7,000 years. It is a biennial plant, but is usually grown as an annual. Modern varieties typically grow to a height of 15 to 45 cm (6 to 18 in). The leaves are yellowish- to bluish green and grow alternately in a flattened, fan-shaped swathe. They are fleshy, hollow, and cylindrical, with one flattened side. They are at their broadest about a quarter of the way

up, beyond which they taper towards a blunt tip. The base of each leaf is a flattened, usually white sheath that grows out of a basal disc. From the underside of the disc, a bundle of fibrous roots extends for a short way into the soil. As the onion matures, food reserves begin to accumulate in the leaf bases and the bulb of the onion swells. In the autumn, the leaves die back and the outer scales of the bulb become dry and brittle, so the crop is then normally harvested. If left in the soil over winter, the growing point in the middle of the bulb begins to develop in the spring. New leaves appear and a long, stout, hollow stem expands, topped by a bract protecting a developing inflorescence. The inflorescence takes the form of a globular umbel of white flowers with parts in sixes. The seeds are glossy black and triangular in cross section. The average pH of an onion is around 5.5 Onions are available in fresh, frozen, canned, caramelised, pickled, and chopped forms. The dehydrated product is available as kibbled, sliced, ring, minced, chopped, granulated, and powder forms.



Experimental Details:

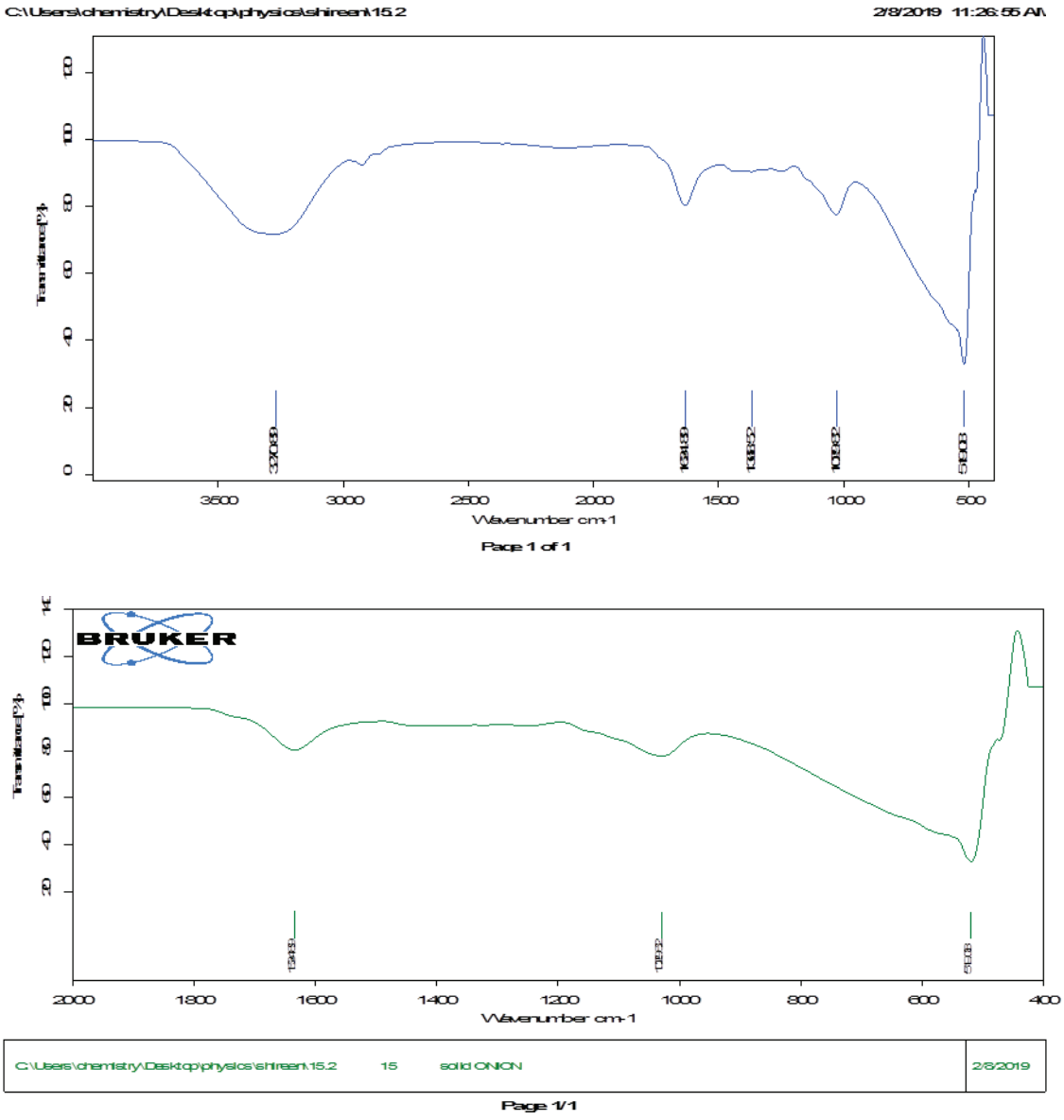
Synthesis: FTIR is the most powerful tool for identifying the types of chemical bonds (functional groups) present in compounds. The wavelength of light absorbed is characteristic of chemical bond as can be seen in the annotated spectrum.

The cleaned, fresh, onion slide of 3mm thickness is loaded under FTIR spectroscope (shimadzu), with effective scanning limit from 400 to 4,000cm^{-1} in the resolution of mid IR region, **Vegetable Onion is picked from taken from local market and cleaned the properly as the preliminary step.**

Computational Details:

FTIR Spectral Data Interpretation:From the Peaks obtained in the present spectra, it could be concluded that, the various functional groups probably indicate the presence of eugenol, carbohydrates-glycogen, amides, esters and alkyl halides. Among the functional groups observed in the sample, carbohydrates-glycogen has got the ability of producing and stimulates glyrogene which in fact controls sugar levels.

The fats produced in it acts as dietary fibers which slow the sugar levels by breaking down slowing and control the stool, which may help ease constipation, a common problem among diabetics. The proteins produced stimulate the carbs which releases sugar in blood stream at quicker rate.



Conclusion: The present of carbohydrates results in sufficient Glycaemic Index which slowly affects the blood glucose levels.Presently this is concluded by comparing with standard spectra of FTIR Blood sugar levels can be balanced by the proper intake of onions in the daily meals.Therefore novelty determination of presence of Carbohydrates, Fats and Proteins in fresh raw slide of onion can act as diabetor-diabetic manager in routine diet of diabetic – 2 people.

Acknowledgement: I, Shireen Tagore would thank Dr.H.Saleem, Dr.Kaleem Ahmed Jaleeli for constant guidance and support to understand this area. Also express my gratitude to departments of Physics and Chemistry, Centralised laboratory, RBVRR women's college, Narayanaguda, Hyderabad for necessary enivornment to conduct practical session and present my work sucessfully.

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