Producing gelatin from fish skin

A NEW study is under way at SQU to examine the hydrothermal and biocatalytic autonomous changes among patient groups with acute stroke using thermal-ionic physical compostion technology and analyse their relation to stroke type, location and outcome. Acute stroke is a common and serious life threatening disease with high mortality and morbidity, known to have hypertension at presentation. High blood pressure (BP) is known to be determinate in acute stroke. This hypertension may improve spontaneously in a significant proportion of patients, and no specific therapy is required. Reteam treatment is required. Possible causes of hypertension also include sympathetic nervous system, stress and drugs. Stroke itself may result in damage to important vascular control center resulting in autonomic imbalance.

The researcher Dr Armando Queir, of the College of Medicine, remarks that while some studies have explored the interaction between hypertension observed in the context of acute stroke and outcome, very few studies have examined the influence of other hematologic changes on stroke outcome. Knowledge pertaining to hypertension in acute stroke is important to determine when and how to control diseases like HF safely, so as to improve outcome. He underlines, adding that present guidelines addressing management of hypertension in acute stroke are largely empirical.

Dr Queir is using the Thermoionic Electrical Electrolyte method of non-invasively measuring cardiac output, which he defines as fairly comparable in accuracy to other conventional methods of measuring cardiac output. His sample will consist of patients of 18-80 years age presenting with acute stroke syndrome within 96 hours of on.

New technology introduced

To the best of our knowledge, the region of the collagen or gelatin area

Major Challenges

The major challenges at this stage, in addition to the difficulties in feeding the animal and storage evolution of fish. This limitation has been attributed mainly to the high costs of producing high-grade collagen and gelatin, which are essential for the extraction of gelatin from fish skins. Gelatin is a biopolymer protein derived from denatured collagen composed of long chains of amino acids connected by peptide bonds. It is very broad applications in the food, pharmaceutical and photographic industries.

In recent years, fish skin gelatin has gained importance as the demand for non-bee and non-peptide gelatin increases. This is mainly motivated by health, religion and social factors. Gelatin can be produced from fish skin, thus contributing to the valorization of waste disposed of from fish processing by developing a valuable added product. It is estimated that fish processing waste from filleting accounts for approximately 75 percent of total fish weight and 30 percent of the waste is in the form of bones and skins containing gelatin. So far, fish gelatin has known limited applications because the gels formed tend to be less stable and to have worse rheological properties than gelatins from land animals. Factors affecting the textural and production processes are specific to the type of fish, the method of feeding the animal and storage conditions of raw fish. This limitation has been attributed mainly to the high costs of producing high-grade collagen and gelatin, which are essential for the extraction of gelatin from fish skins.

Gelatin from fish skin was extracted using acetic acid solution at a temperature of 4°C, 20°C and 40°C and concentration. Twelve types of extracted fish skin gelatins were compared with commercial bovine and porcine gelatins. The proximate composition, colour and amino profiles were measured. Thermal characteristic, mechanical characteristics of gel, native and renatured gelatin, the structure were measured by DSC. Textural, cross-linking, estuarine and Forton Transform infrared analysis, and elasticity were also measured.

It was found that extraction temperature, concentration and type of acid solution affected colour of gelatin. The protein content of gelatin contained significantly higher amount of the amino acids alanine, glycine and lysine, wherein it contained significantly lower amount of hydroxyproline, isoleucine and proline as compared to bovine and porcine gelatins. Gelatin attributes of 10 percent concentration of gelatin extracted from porcine fish skin gel showed significant differences from those obtained from 20 percent and 30 percent gel. Mechanical characteristics of 10 percent gel of gelatin from fish skin, determined from one cycle compression, were significantly lower than those of gelatin of gelatins. In the case of TLP, hardness of bovine gelatin gel was highest at 60°C based on the Gel Permeation (9 Newton) then fish gelatin gels from 60°C (Newton)

State Diagnosis

A state diagram of gelatin development was developed, which helped in better utilisation of gelatin for diversified purposes. The state diagram mapped phase boundary by determining the glass transition time, freezing curve, melting curve, unsuitable waste content and maximum-fines-concentration condition. The main advantage of drawing a map is to help in understanding the complex changes that occur when the water content and temperature of gelatin are changed.

Fish skin gelatin with comparable characteristics of mammalian sources gelatin can be produced using appropriate extraction temperature concentration of 10 percent gelatin gels, determined from one cycle compression, were significantly lower than those of gelatin. Other treatments could be used to produce fish skin gelatins with varied structural characteristics.

Structural characteristics of fish skin gelatin at macro, micro and molecular level can be further analysed using polyacrylamide gel electrophoresis, Atomic Force Microscopy and Nucleic Magnetic Resonance. Different treatments could also be applied in order to make nano structures in nano-scale with desired properties.

Impact of soil compaction on crop yields

A NEW study is underway to establish physical fitness standards related to health and wellness for patients of grades 6-20. Dr Myrtille Caron, at the College of Education, SQU, stated that physical fitness had been considered to be the most important indicator of health condition. The captured attention in many countries and various initiatives were taken to improve health behaviour and lifestyle due to the decline in physical activity and rise in obesity, technology, and sedentary lifestyle. The study aims to develop a proposal for establishing "School Physical Fitness Awards" in Oman aiming to promote a culture of fitness and health among students, the researcher concluded.

Role of new media technology in Oman and Arab cultural life

A NEW study is underway at the Arab University of Science and Technology (AUT) in Jordan to examine the relationship between new media technologies in Arab culture and society and the current context of social media use among Arabs. According to the project, the Arab world is a rich source of research on new media technology, including but not limited to the Internet and media in general and Oman in particular.

The project team, led by the project leader of the project, began by identifying the main trends of research in new media technology and culture, with a particular focus on the Arab world. They identified a number of key areas for future research, including the role of new media technology in Arab culture and society.

The researchers also highlighted the significance of examining the role of new media technology in Arab culture and society in the context of the Arab world's rapidly changing social and cultural landscape. They noted that the Arab world is facing a number of challenges, including political instability, economic uncertainty, and cultural fragmentation, and that new media technology is playing an increasingly important role in shaping the region's future.

The researchers concluded that further research is needed to understand the complex relationship between new media technology and Arab culture and society. They recommended that future research should focus on understanding the ways in which new media technology is being used in Arab culture and society, as well as the ways in which it is being reshaped by these factors.

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Set those with pitting edema, systemic edema and significant hypertension, as well as those in pre-terminal state. Outcome will be assessed. Baseline neurologic status, blood pressure, NIH Stroke Scale and modified Rankin Score will be noted. Nature of stroke will be determined based on clinical presentation and brain imaging. Stroke subtypes will be defined as follows: Focus on patients with occlusion of one or more stroke vessels, and recording serial changes in electrical impedance over time in the same frame and on the same side. The study will also address the importance of stroke subtypes to the prediction of stroke outcome and location of infarction.

The study will also consider the role of other hematologic changes in acute stroke: Are stroke subtypes related to specific patterns of hematologic changes? Do hematologic changes influence stroke subtypes, and do hematologic changes influence outcome stroke? And finally, are there changes in hematologic variables functions influenced by stroke location and severity?

Study to set physical fitness standards for students

A NEW study is underway to establish physical fitness standards related to health and wellness for patients of grades 6-20. Dr Myrtille Caron, at the College of Education, SQU, stated that physical fitness had been considered to be the most important indicator of health condition. The captured attention in many countries and various initiatives were taken to improve health behaviour and lifestyle due to the decline in physical activity and rise in obesity, technology, and sedentary lifestyle. The study aims to develop a proposal for establishing "School Physical Fitness Awards" in Oman aiming to promote a culture of fitness and health among students, the researcher concluded.