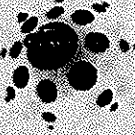
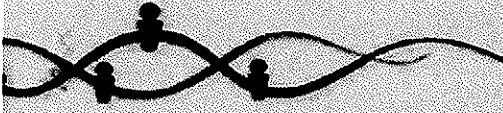


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3 Mar 2011



3rd IIUM-ICAST 2010
Oral Session

ID 077 27 Nov/20 Dhul al-Hijjah Saturday 1440-1500 Ballroom

Medical miracle in the Quran
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Quran, to the Muslim, is the irrefutable, inimitable Word of ALLAH (Subhanaho Wa Talah). It was revealed by ALLAH Almighty, through the instrument of Prophet Muhammad (peace be Upon Him). The Prophet (peace be upon him) himself had no role in authoring the Quran, he was merely a human secretary, repeating the dictates of the Divine Creator.

The Holy Qur'an is the Holy Book of ISLAM. The verses of the Holy Qur'an were revealed to Prophet Mohammad (peace be Upon Him) by the Angel Jibreel over the period of twenty three years. One or more verses were revealed at a time. The Holy Qur'an is a complete constitution that ALLAH (SWT) Bestowed on mankind. Its verses give ALLAH's rules and laws for all aspects of life. As well as Quran tells a wide range of scientific phenomena.

Concentrating on the medical ones including the human developmental stages, the physiology of the human body, the effect of practicing worships on improving the health, the nutrition aspect as well as controlling diseases, these fact in addition to many others were brought to Prophet Mohammad (peace be Upon Him) since more than 1400 years.

The modern science only within the last century proved the reality of these fact to be considered as scientific miracles, from ALLAH

ID 053 27 Nov/20 Dhul al-Hijjah Saturday 1440-1500 Function Room 4

Fired shell powder of bivalve *Corbicula japonica* Improves liver function in the LEC rat hepatitis model

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Fired shell powder of bivalve *Corbicula japonica* has been traditionally used as a folk medicine in the north part of Japan to improve malfunction of liver without scientific evidences. Experiments were designed to assess its efficacy using LEC (Long Evans Cinnamon) rat hepatitis model. This rat develops acute hepatitis around 4 months old due to hereditary defect. Fired shell powders of *Corbicula*, and two of *Ruditapes* and *Patinopecten* as a reference were respectively provided for a comparative study. Crystal (CaCO₃) of those fired shell powders was analyzed by the X-ray diffraction apparatus. All types of fired shells showed aragonite structure when fired below 400°C, and it was calcite at 500°C, and became lime over 750°C treatment. In bio-functional tests of those shell powders, the calcite type of *Corbicula japonica* fed-LEC rats prolonged its survival period accompanied with decrease of GOT (glutamic oxaloacetic transaminase), GPT (glutamic pyruvic transaminase), Tbil (total bilirubin) and IAP (immunosuppressive acidic protein). By contrast, aragonite type of *Corbicula japonica* and calcite type of *Patinopecten* showed no activities to compare with the calcite of *Corbicula japonica*. Further the calcite of *Corbicula japonica* enhanced NK cell activity (natural killer) in the calcite fed-LEC rats accompanying with increase of cytokines generation of TNF-α, IL-2, IFN-γ in spleen cell culture system. Those results indicate that the calcite type of shell powder of the bivalve *Corbicula japonica* possess liver function improvement activity with enforced NK cells activity.

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showed best BLASTs match with *Providencia nitron* strain YL, *Enterobacteriaceae* bacterium EUPAB1, *Bacillus subtilis* strain Bio AAS1, *Bacillus* sp. FRC_Z41 and *Proteus* sp. M061017-3 respectively.

Abstract 91

Fired shell powder of bivalve *Corbicula japonica* improves liver function in LEC rat hepatitis model

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Fired shell powder of bivalve *Corbicula japonica* has been traditionally used as a folk medicine to improve malfunction of liver in the northern Japan without any scientific evidence. Experiments were designed to assess its efficacy using LEC (Long Evans Cinnamon) rat, which develops an acute hepatitis at around 4 months of age, followed by chronic cirrhosis stage, and finally liver cancer. In analyses by the X-ray diffraction apparatus, the fired shell powders of *Corbicula japonica* and two of *Ruditapes philippinarum* and *Mizuhopecten yessoensis* used as a reference revealed an aragonite form in a crystal structure as fired below 400, a calcite at 500, and a lime over 750 treatment. The *Corbicula japonica* calcite fed-LEC rats got a prolong survival period by oral administration accompanied with lowering liver function makers of GOT (AST) (glutamic oxaloacetic transaminase), GPT (ALT) (glutamic pyruvic transaminase), Tbil (total bilirubin) and IAP (immunosuppressive acidic protein) value. In contrast, both the *Corbicula japonica* aragonite and the *Mizuhopecten yessoensis* calcite as a reference were ineffective as a therapeutic agent against hepatitis in LEC rat. Subsequent experiments showed that the *Corbicula japonica* calcite had additionally bio-functional activities such as the stimulation of cellular immunity by enforcing NK cell activity, cytokines generation (TNF- α , IL-2, IFN- γ), and decreasing lipid (TG, TC) in the calcite fed-mouse sera.

Abstract 92

Enterotoxic and Paralytic-Lethal Effects of Shiga Toxin (Stx2D) Produced by an *Escherichia coli*

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A shiga toxin-producing *Escherichia coli* (STEC) was isolated from a hospitalized diarrheal patient by conventional culture method and was found to be positive for stx2d gene. Toxin was partially purified by ammonium sulfate fractionation and column chromatography from culture supernatant. Toxin preparation was found to cause accumulation of fluid accompanied by inflammatory response in rabbit ileal loops. Ileal loop segments showed severe inflammation in mucosa, sub-mucosa, accompanied by enterocyte necrosis and shearing off tip of villi. In a mouse model, toxin preparation was found to paralyze hind limbs and all mice died within 48 hour of toxin application. Kidney, spinal cord and brain tissue of toxin treated mice showed histopathological changes. The tubular epithelial cells of kidney showed degenerative to necrotic changes. Spinal cord tissue revealed separated cord tissue fragments and brain tissue revealed moderate number of congested blood vessels, larger foci of microhaemorrhages. In this report we demonstrate that the shiga toxin Stx2d not only exhibit enterotoxic activity, but also impair neurological functions in mice.

Abstract 93

Success of Bean Sprouts Industry in Japan Based on Sanitation Strategy

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Japanese consumers demand long and thick sprouts, valuing them as high in quality. These sprouts are cultivated for longer periods of time, from 7 to 9 days. However, the cultivation conditions for such sprouts, high humidity and relatively high temperatures, are also optimal for microorganisms' growth. The Japanese bean sprout industry, which has now become a large-scale industry producing 4 million tons of sprouts per year, has been struggling to conquer the problem of microorganisms causing spoilage during cultivation. Starting with seed disinfection using hot water, cleaning and sanitation of the growing equipment and rooms are fully completed. The growing systems automatically controlled by a computer and