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# **INTEGRATION OF BIOLOGICAL TEACHING OF ISLAM IN THE UNIVERSITY**

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## **I. INTRODUCTION**

The teaching of biological science in most learning institutions today has been secular in nature. Cross examination of biological science in the light of Islam has yet to be promoted. Secularization separates biological science from that of the divine one. The present curriculum and syllabi used in most of the higher learning institutions today are secularized. The teachings of Qur'an on science are not integrated in the teaching of biological science. There has not been yet an integration of the biological science teaching of Islam in the university despite Islam calls for learning and thinking and encourages scientific advancement, and Islam is defined as a complete way of life and biology is a study of life. On the contrary, Muslim educators and learners have become dependent on the western science which does not acknowledge divine knowledge thus making the students estranged from Allah. Hence, there is a need that the teaching of some biological theories and concepts should be within the context of Islam. Certain biological theories and principles have to be based on Islamic context as what scholars have confirmed that the study of biological science is not against Islam. In order to accept the true meaning of life, educators and learners can only understand such meaning in the teachings of Islam.

Islamization of knowledge to include biology will help the students understand and appreciate Islam as source of knowledge. Only Islam can explain the origin the mystery of creation and can guide the learners to understand the role of mankind and their duties in relation to environmental preservation. The purpose of this research is to reform the general perception of both educators and learners on biological science using the prism of Islam. This research is based on the interview and survey of the perception of the biology students, biology instructors and other professors of the Mindanao State University-Sulu. The instruments used were the questionnaires composed of two parts which were the perception and level of awareness of students and teachers. Library work was also undertaken.

## **II. BIOLOGICAL TEACHINGS OF ISLAM RELEVANT TO CURRICULUM**

There are Qur'anic verses relevant to biology and sufficiently elaborated by some Muslim scholars, worthy to be part of the biological teaching of Islam. This part presents the discussion and justification on why biological teaching of Islam should be a part of the curriculum in the university. Biological teaching of Islam means teaching biology from the perspective of Islam. That is, the Qur'anic verses serve as the guiding principles, thereby correcting the existing wrong notions like the Darwin's theory of evolution. Biological teaching of Islam is one approach in reforming the curriculum adopted by Muslims in the university in order to bring biology teaching to Islamic principles.

In an interview with Dr. Hannbal H. Bara, he said: “Islamization of the teaching of biology is very necessary so that the teaching of this natural science can be presented from the perspective of the Qur’an which emphasizes the worldly creation has originated from water. Islamization of knowledge is aimed to Islamize the modern discipline particularly its principles, methodologies, problems and themes. If Islamization of knowledge spreads, confusion of knowledge, discrimination against Islam and misconception among educators on scientific theories will come to an end. The non-Muslim students can have the chance to know the position of Islam with respect to biology.” Thus, biological teaching of Islam is necessary. In reality, Dr. Nagder J. Abdurahman in an interview said, “in the contemporary society many scholars in natural sciences to include the field of biology have failed to bring out the universal principles which remain authentic all throughout the ages.

Islam is the truth and the Qur’an is complete as explained by Dr. Muammar S. Sakili. The Qur’an describes the nature of man as servant of Allah and is commanded to submit completely to the religion of Islam. Man is by nature is called Muslim which means one who submits to the will of Allah. The physical structure of man follows the law of nature as decreed by Allah. It follows the natural law is technically called Muslim.” The Islamic perspective must be the foundation of knowledge to support the biological teaching. All teachings not in conformity to Islam should be recast.” It can be easily concluded that there must always be the integration of the Islamic view in teaching biological processes because Islam is the nature of man. So, man’s life should not be redirected into fallacies; rather, it must be within the core of Islam.

Biological teaching of Islam in the curriculum is to recover and attain the accepted and right principles of biology. Biological teaching of Islam is for everybody to recognize the Creator of life. Prof. Ibrahim U. Ahmad explained: It is very much necessary that biological teaching of Islam in the university particularly MSU-Sulu must be integrated in the teaching process for everybody to recognize the Creator of life. In fact, biology is a science of life and Islam is a complete way of life. The learners who recognize divine power will think that life is but Allah’s creation. Their biological knowledge may lead them to confirm their belief in Islam.

Prof. Ahajul Y. Amirul added that undoubtedly, the inclusion of biological teaching of Islam in the curriculum is very much needed by the Muslim teachers and learners in their journey for scientific advancement and moral discipline. There is a need to include the biological teaching of Islam in order for the learners and teachers to recover and attain the accepted and right principles of moralities. Dr. Abdurajik Dansalan also argued that, for Muslim teachers and students, the integration of biological teaching of Islam will light up their knowledge and can easily reconcile the biological theories with the principles of Islam.

Dr. Nagder J. Abdurahman cited the verse in search for proof in any experiment, “Say: produce proof if ye are truthful.” (Qur’an, 2:111) When biological science accepts the truth of the scientific facts mentioned in the Qur’an, then science will become an instrument to prove the divine truth and help skeptical people to understand the teachings of Islam. With Islamized knowledge

of modern science, the students will realize the universality of Islam that Allah is the Creator and Sustainer of the whole creations.

If the aim of education is to attain enlightenment, Islamization is the right strategy. School administrators should facilitate the conduct of training on Islamization of Knowledge for the Muslim teachers so that they can help to make science conforms to Islam.

### **III. RELEVANT AND APPLICABLE QUR'ANIC VERSES TO BIOLOGY**

#### **The Qur'anic Verses on Sex Determination**

There are Qur'anic verses relevant to the sex determination. Allah (SWT) says, "Glory to Allah, who has created all the pairs of that which the earth produces, as well as of their own (human) kind (male and female), and of that which they know not." (Qur'an, 36:36) He also says, "He creates what He wills. He bestows female (offspring) upon whom He wills and bestows male (offspring) upon whom He wills." (Qur'an, 42:49) Also, Allah (SWT) says, "And of him He made two sexes, male and female." (Qur'an, 75:39) Allah (SWT) also says, "He has created both sexes, male and female from a drop of semen which has been ejected." (Qur'an, 53:45-46)

(Chanco, 1997:58) pointed out that in normal human being, males are XY and females are XX chromosomes. Under XX-XY mechanism of sex determination, the sex of human is determined by the presence or absence of the X and the Y chromosomes. The sex of an individual is determined by the kind of sperm cell, X- bearing or Y- bearing that fertilizes the egg.

#### **Qur'an on the Functions of the Genes**

The units of inheritance that guide heredity and control the development of specific physical or behavioral traits in a living organism including human are the genes (Hopson, 1991: 5). Specific genes inherited from parents, determine whether a person has blue green, brown or hazel eyes; tall or short; good or bad. Regarding this, Allah (SWT) says, "We have created you in pairs (male and female), tall and short, good and bad, and other two opposites traits." (Qur'an, 78:8) In biological aspects, the function of the genes is to determine and control the physical, sexual, physiological, behavioral and other characteristics of organisms including human. For example, the height, skin color, appearance, behavior, blood type and other traits are determined by the genes. Also, Allah says, "Have We not made for him a pair of eyes and a tongue and a pair of lips?" (Qur'an, 90:8-9)

#### **The Qur'an on the Characteristics of Life**

Hopson defined the characteristics of life as follows: Order is defined as a precise arrangement of structure and activities in living things, and each has a specific relation to all the others. Concerning this, Allah says, "He created him and then set him in due proportion." (Qur'an, 80:19) Another verse is, "Who created you, fashioned you perfectly; and gave you due proportion; in whatever form He willed, He puts you together." (Qur'an, 82:7-8) In another verses, "Allah

shaped and fashioned him in due proportion.” (Qur’an, 75:37) Another one is: “Have we not made for him a pair of eyes and a tongue and a pair of lips?” (Qur’an, 90:8-9) The quoted verses are found relevant and applicable to the definition of order as a characteristic of life.

Adaptation refers to which the organisms must undergo changes in relation to the conditions of their environment in order to become adapted and survive in the given different environmental conditions. Allah (SWT) says, “Verily! Allah will not change the good condition of a people as long as they do not change their state of goodness themselves.” (Qur’an, 13:11) Biologist said, adaptation is a process in which specific structure and behavior suit organisms to their environment. Thus, this verse is relevant and applicable to biology.

### **Qur’an on the Origin and History of Life**

Raven emphasized some theories on the origin and history of life:

Special creation theory states that life-forms may have been put on earth by supernatural or divine forces. That a divine God created life is at the core of most religions. Concerning this, Allah (SWT) says, “Verily we have created all things with *qadar* (divine preordainment of all things before their creation or written in the book of decrees), verily all things have we created in proportion and measures.” (Qur’an, 54:49) “And He is all knower of every creation!” (Qur’an, 36:79) Again, Allah (SWT) has said, “And whatsoever He has created for you on the earth of varying (qualities or colors) botanical life and zoological life.” (Qur’an, 16:13) Say, “He will give them life Who created them for the first time for He is well-versed in every kind of creation.” (Qur’an, 36:79)

Spontaneous Origin or abiogenesis theory states that all living organisms come from non-living matter. Organic matter originated from inorganic matter. Allah (SWT) has said “It is He who has created man from water, and has appointed for him kindred by blood, and kindred by marriage; And your Lord is All-powerful (to do what He wills).” (Qur’an, 25:54) and “Indeed, We created man (Adam) out of an extract of clay (water and earth)”, man We did create from a quintessence of clay.” (Qur’an, 23:12). Also, Allah (SWT) says, “We created man from dried (sounding) clay of altered mud or We created man from sounding clay, from mud moulded into shape (Qur’an, 15:26).

Biogenesis principle or theory states that life may come from life. With respect to this, Allah (SWT) says, “Offspring, one of the other, and Allah is all-hearer, all knower.” (Qur’an, 3:34) Another is: “Then, after them we created another generation then We raise after them another generation.” (Qur’an, 23:31) Biologists state that all cells arise from pre-existing cells. Speciation is defined as the process of generating new species. (Chanco, 1997: 15)

### **Qur’an on Vegetative Reproduction of Plants**

The vegetative (asexual) reproduction refers to the process of producing new plants through leaves, stems and roots without union of male and female gametes (Raven, 1999: 714). In relation to this, the verse is “He it is who sends down water (rain) from the sky; from it (grows) the vegetation on which you feed your cattle or send your cattle to pasture.” (Qur’an, 10:10). Also, “And by the Earth

which opens out (for the gushing of springs or the sprouting of vegetation is relevant.” (Qur’an 86:12)

### **Qur’an on the Germination and Seedling Development**

In the field of botany, germination refers to the sprouting of the seeds to produce new plants in the form of cotyledon. Development refers to the increase in the number of leaves until it can produce root system and other parts like stem and branches. In the Qur’an, “Verily! It is Allah Who causes the seed-grain and the fruit-stone to split and sprout.” (Qur’an, 6:95) Another verse, “by the sky (having rain clouds) which gives rain, again and again and the earth which splits (with the growth of trees and plants).” (Qur’an, 86:12) Chanco asserted that when conditions for growth are favorable, seeds sprout and grow in a process called germination. When condition is conducive, germination begins. Germination is affected by water availability and temperature. Seeds will germinate only when enough water is present. From the above elaboration of seed germination and seedling development in the context of biology, it is true that there are Qur’anic verses on this process which are relevant and applicable to biology.

### **IV. LEVEL OF AWARENESS AND PERCEPTION OF BIOLOGY STUDENTS AND TEACHERS**

As found out, majority of the students and teachers were aware on the conformity of biology to Islamic context. Most of them perceived that biology is also under the teaching of Islam, provided all wrong concepts are recast to eliminate wrong perception.

On sex determination, 25% of them was very aware, 68.75% aware, 6.25% moderately aware, and none of them is unaware.

On Gene functions, 12.5% of the participants were very aware, 75 %, aware and 12.5% were moderately aware. Most of them have considered the function of the gene as the determiner of all the traits. This function is related to the verse “We have created you in pairs (male and female, tall and short, good and bad, and other two opposite traits).” (Qur’an, 78:8)

On order, a characteristic of life, 50% of them were found very aware, 18.75% were aware, 31.25% were moderately aware. Majority of the student participants know that the precise arrangement of the parts of the body and their functions as defined by Biologist are also tackled in the Islamic view. The participants have perceived and believed that there is relatedness of Islamic viewpoint and biological aspect based on the verses below: Allah says, He created him and then set him in due proportion. (Qur’an, 80:19) Who created you, fashioned you perfectly, and gave you due proportion.

On adaptation, 25% of them were very aware, 68.75% were aware and 6.25% were moderately aware and none was unaware. This points out that the student participants have the knowledge that any living thing must undergo changes to adapt in their environment in order to survive. In the Islamic realm as exemplified in the verse 11 of chapter 13 which states that “Verily! Allah will not change the good condition of a people as long as they do not change their state of goodness themselves.”

On special creation, there were 12.5% of the respondents were found very aware, 68.75 % were aware, 18.75% of them were moderately aware. This means that the biology students have the knowledge on the statement about the special creation as explained scientifically is also under the context of Islam. Allah says, "Verily, We have created all things with *qadar* (divine preordainment) of all things before their creation." (Qur'an, 54:49)

On "spontaneous origin or abiogenesis theory" states that life came from non-living thing, only 6.25% of them were very aware, 62.5% were aware, 25% were moderately aware and 6.25% were unaware. As mentioned in verse 12 of chapter 23 which states, "And indeed We created man (Adam) out of the extract of clay." (water and earth) or man We did create from a quintessence of clay, thus, they perceive this theory has Qur'anic basis.

On biogenesis principle or theory, most of the respondents were aware that biogenesis theory states that life come from preexisting life. The respondents believed that this topic has conformity with the Qur'anic verses. Allah (SWT) says, "And it is He who has made you generation coming after generations, replacing each other on the earth." (Qur'an, 6:165) Because of the belief that biogenesis origin is accepted in Islam, 18.75% of the respondents were very aware, 68.75% were aware, and 12.5% were moderately aware.

On vegetative (asexual) reproduction of plants, Allah (SWT) says, "He it is who sends down water (rain) from the sky; from it (grows) the vegetation on which you send your cattle to pasture and with it He causes to grow for you the crops and every kind of fruit." (Qur'an, 16:10-11) As to the level of awareness of the participants 56.25% of them were very aware, 18.75% were aware, 18.75% were moderately aware and 6.25% were unaware.

On germination and seedling development, most botanists have explained that seed germinates when environmental factors are available including water and develop into young plant. In the passage of the Qur'an (41:47), Allah (SWT) says, "No fruit comes out of its sheath, nor does a female conceive nor brings forth (young one), except by His knowledge." Based on the result, the participants were aware as indicated by 81.25% responses that seed germination and seedling development are complemented by Qur'anic verse. Thus, they agree on the integration of these two views.

## **V. CONCLUSION**

Islamization of knowledge like biology will help the students understand and appreciate Islam as source of knowledge. Only Islam can explain the origin, the mystery of creation and can guide the students to understand the functions and interrelationship of the ecosystem.

The Qur'an for instance explains the sex determination this way: "He creates what He wills, He bestows female upon whom He wills, and bestows male upon He wills." (Qur'an, 42:49) "And made of him two sexes, male and female." (Qur'an, 75:39) "We have created you in pairs, male and female." (Qur'an, 78:8) This verse is also relevant to the function of gene as determiner of contrasting traits. The structure of organism is related to this verse, Allah shaped and fashioned him in due proportion (Qur'an, 75:38). Adaptation of organism to environment is also explained in the Qur'an: "Verily! Allah will not change the good condition of organisms as long as they do not change themselves." (Qur'an,

13:11) The Qur'an also says about the vegetative reproduction of plants: "He it is who sends down water from the sky; from it grows the vegetation on which you feed your cattle." (Qur'an, 16:10)

On seedling germination, the Qur'an says: "Verily! It is Allah who causes the seed grain and fruit-stone to split and sprout." (Qur'an, 6:95) "By the sky (having rain clouds) which gives rain, again and again and the earth which splits (with the growth of trees and plants)." (Qur'an, 86:12) All creations are pre-determined. "Verily! We have created all things with *qadar*." (Qur'an, 54:49). Indeed, We created man (Adam) out of an extract of clay (water and earth). This is the explanation of life comes from non--living matter. The biogenesis theory in which life comes from life is also mentioned: "Then after them We created another generation." (Qur'an, 23:31) Exactly, the Qur'an contains verses which are relevant and applicable to biology.

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