

## **Development of Basic Biology Textbook Based Integration of Science and Islam**

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### **ABSTRAK**

Lecturers have the opportunity to spread the values of science and Islam to biology students at PTKIN. One of the efforts is to make a basic biology book that integrates it into Islamic teachings. The aim of this study was to test the validity and practicality of the biology book which is integrated with Islam (Alquran). In addition to the identification of Surahs and verses of the Alquran that explain basic biological material in semester 1. This research is R&D. The validity and practicality of the data were analyzed using a Likert scale. The technique of collecting data by means of FGD as many as 9 students and 4 lecturers. The results showed that the basic biology textbooks based on the integration of science and Islam at IAIN Kudus were declared valid with very good criteria and practical with very good criteria. The content of this book consists of 12 chapters, namely biology as a science, cells and viruses, tissue structure of animals and plants, biological diversity, metabolism, nervous and endocrine systems, digestive systems, reproductive systems, circulatory systems, principles of genetics, evolution, and biotechnology. The most important point of the integration Al quran and science is, how the verses of Quran can described base on science, For example, in Surah Yasin verse 80, it is explained about green plants, which if studied in biology, green leaves are due to the content of chlorophyll in the leaves, which can convert sunlight into energy in the process of photosynthesis.

*Keywords:* Textbooks, Basic Biology, Integration of Science, and Islam

### **INTRODUCTION**

One of the study programs opened by IAIN Kudus in 2016 was Biology education. The results of the meeting regarding the KKN curriculum on March 13, 2018, resulted in a vision and mission, namely: "To create Biology education graduates who are superior and skilled in applying Islamic values in the ASEAN region by 2035". This vision is very good because it shows the difference between graduates at PTKIN and PTU. This vision needs to

be supported by curriculum standards, funding, process, content, and evaluation to be successful.

Lecturers have the opportunity to instill scientific and Islamic values to Biology Education students at IAIN Kudus. One of the efforts is to provide textbooks that are integrated between Islam and biological sciences (Silviya, 2016). Professional lecturers are those who have 4 competencies at once (Jalil, 2018). The ability to make teaching materials is one of the characteristics of professional educators. Biology as a science is very strategic in strengthening textual verses of the Alquran. The truth in the Alquran can be proven by scientific explanations in the science of Biology.

General knowledge and religion are a unity that cannot be separated from one another. The dichotomy of science does not need to be debated anymore, because the verses in nature (Biology) can strengthen the verses of the Alquran. In addition, Permenristekdikti No. 44 of 2015 concerning SNPT mandates educators to instill the values of attitudes and values in students. Students are also expected to be pious to God Almighty and able to show a religious attitude.

The existence of textbooks containing science and Islam is still difficult to find in the context of education, including basic Biology courses (Silviya, 2016; Sutrisno, 2016). The results of observations in the field found that books containing biology and Islam were still limited. This condition has an impact on lecturers' efforts to internalize Islamic religious values.

Almost all Biology Education courses can be integrated with Islamic values, including basic Biology. Collaborative learning is one of the characteristics of learning in the IQF curriculum (Maba, 2016). Basic Biology courses in the KKNi curriculum are in odd semesters with 2 credits.

The development of textbooks is expected to be valid and practical according to validators and students. The results of the development of cell biology textbooks were declared valid and feasible to be used as learning media. This feasibility is seen in terms of the correctness of the material by the expert of material, the feasibility of textbooks as learning media (Pangastuti et al., 2016). Meanwhile, biotechnology textbooks are stated to be interesting, contextual, and can be presented through solving problems that exist in the environment which will provide a good learning experience. The language in textbooks should be designed in such a way that it is easily absorbed by students. Pratama et al., (2016) and Solikha (2015), added that the strength of textbooks lies in the visualization aspect (sentence, font size, typeface, image display) and aspects of student interest in learning the material being taught.

Based on the explanation of problem solving and the characteristics of basic Biology textbooks above, the development of basic Biology textbooks based on the integration of

science and Islam is expected to be valid and practical. The aims of this research are: (1) To test the validity and practicality of basic Biology textbooks based on the integration of science and Islam in the Biology Education study program at IAIN Kudus; (2) Explaining the Islamic content in the basic Biology textbook that was developed.

## **RESEARCH METHODS**

This research belongs to the type of research and development (R&D), which is a design activity that is not routine, so that it includes the latest contributions, both in form, process, and final product (Sukaesih & Kartijono, 2014). The research stages consist of 6 stages as follows:

- 1) Phase I: Make a lesson plan in the development of textbooks. Before designing a study book, it is necessary to look for potential and problems and collect information. Potential and problems, field studies were carried out by making observations at the IAIN Kudus library regarding the existence of Islamic integrated basic biology textbooks
- 2) Stage II: Stage of Drafting of Textbook Development. At this stage, the design activities for making textbooks are carried out.
- 3) Phase III: Review of Media Experts and Material Experts. Several expert activities and trials were carried out as follows.
  - a) Overview of Learning Content Experts and learning media experts
  - b) Analysis and Revision I
- 4) Phase IV: Small-scale trial on nine (9) Biology students of STAIN Kudus in the second semester of the 2017/2018 academic year. This activity will obtain the practicality of the product which includes aspects of learning books, influence on students, possibility (feasibility). Further analysis and revision II
- 5) Stage VI: Final Product Development: The research data was developed descriptively. Descriptive analysis was carried out on the data obtained during the formative test process in this case in the process of developing basic biology textbooks on the integration of science and Islam in inculcating students' religious attitudes. The picture of the final product in the form of an integrated basic biology textbook with Islamic values can be seen in Figure 1 below.

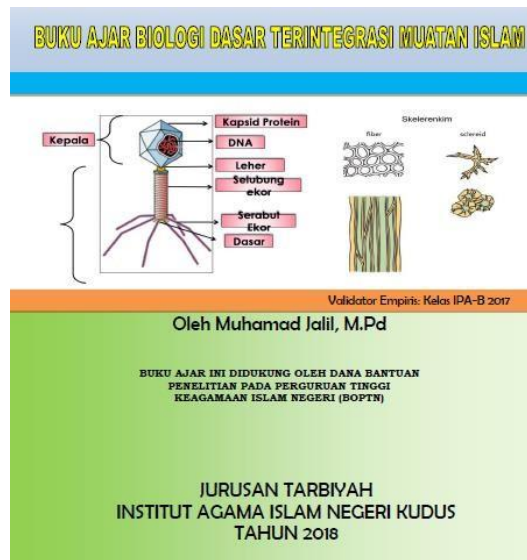


Figure 1. Integrated Basic Biology Textbook with Islamic Values

In analyzing research data, quantitative and qualitative approaches are used. The validation of Biology textbooks integrated with Islam is validated by material experts (eg Biology lecturers) and learning media experts. This aims to determine whether the product design that has been compiled is valid based on the considerations of experts. Small-scale trials were conducted in IPA-B Semester 3 Class with a total of 9 people. The small-scale trial aims to determine the practicality of Biology textbooks. At this stage, the practicality response sheets of textbooks were distributed to students. The data collection technique was by FGD which was attended by 9 students and 4 lecturers.

Evaluators and validators will provide assessment results on basic biology textbooks that are integrated with Islam. The data obtained from the evaluators and validators for each aspect of the developed textbook were analyzed based on the average score. Interpretation of the average score for each aspect consists of a score of 1 to 5. Textbooks can be used if they are valid and practical. The statement is valid and practical if it is in the "good" or "very good" category or is in the range of  $3,40 < \bar{x} \leq 4,20$  atau  $4,20 < \bar{x} \leq 5,00$ .

## RESULT AND DISCUSS

### A. Textbook Validity

The validity of the book is determined by material experts (biology lecturers) and media experts (biology lecturers and learning media practitioners) to assess the feasibility through a validation sheet. The validation results are shown in Table 1.

Table 1. Score of Textbook Validity

No	Assessment Aspect	Score	Average	Maximal Score
<b>A</b>	<b>CONTENT ELIGIBILITY</b>			
	1. Material compatibility with Islam	13	4,33	15
	2. Material accuracy	14	4,67	15
	3. Material support	12	4,00	15
<b>B</b>	<b>LANGUAGE ELIGIBILITY</b>			
	1. Compatibility with student language development	14	4,67	15
	2. Legibility	14	4,67	15
	3. straightforwardness	14	4,67	15
	4. Coherence	12	4,00	15
	5. Conformity with language rules	15	5,00	15
	6. Use of terms or symbols	13	4,33	15
<b>C</b>	<b>APPEARANCE ELIGIBILITY</b>			
	1. Appearance Techniques	13	4,33	15
	2. Appearance support	13	4,33	15
	3. Appearance equipment	14	4,67	15
<b>D</b>	<b>GRAPHIC ELIGIBILITY</b>			
	1. Book size	14	4,67	15
	2. Book cover design	13	4,33	15
	3. Book content design	14	4,67	15
<b>Total</b>		<b>202</b>		<b>225</b>

From the table, then look for the final validity value. The calculation results are shown as follows. The validity score obtained is 4.48 (very good). This value is in the range between a score of 4.20 and 5.00, so the Islamic integrated basic biology textbook is declared valid and suitable for use in Biology Education at IAIN Kudus. In the validity assessment, material and media experts also provide comments and suggestions at the end of the validity sheet. These comments and suggestions are used as a reference to improve the draft of the textbook so that it is better. Comments and suggestions are shown in Table 2.

Table 2 Validator Comments and Suggestions

No	Validator	Comments and Suggestions
1	Expert 1 (biology lecturer)	Need to add a concept map to each chapter
2	Expert (IPA lecturer)	Need to add Arabic writing and the hadith is reproduced
3	Media (Biology Lecturer) and Learning media practitioners	Do not provide comments and suggestions

### B. Practicality of Textbooks

Practicality is done after going through the textbook validation process. Practicality data was obtained by distributing practicality sheets to nine IPA-B Semester 3 students. The assessment aspect consisted of the clarity of textbooks, the effect of textbooks, and feasibility. The raw data are then recapitulated which is shown in Table 3.

Table 3 Practical Score of Textbooks

No	Assessment Aspect	Score	Average	Maximal Score
A	Textbook clarity	36	4,00	45
B	Influence on students	40	4,44	45
C	Possibility	38	4,22	45
Total		114		135

Based on these acquisitions, the practicality value is calculated with the following details. This value indicates that the basic integrated biology textbooks are practical in Islam. Practical statement because the textbook is in the very good category or in the range of  $4.20 < 5.00$ . Students not only assess the practicality of textbooks, but also provide comments and suggestions at the end of the practicality sheet for basic Biology textbooks. Comments and suggestions generally give a positive response. This is as in the comments of respondent 1 below:

*“This basic Biology textbook has a good impact on students, because it integrates Islamic content which presents naqli and legal arguments. So in addition to studying Biology, we also understand the theory and material from an Islamic perspective. For suggestions, the writing layout and image clarity can be improved.”* (Response 1 FGD, 2018)

Besides integrating Islam and Biology, this book is also expected to be published and printed. In addition, it can be stored in the campus library so that it can be read by many students at IAIN Kudus. Following are the comments in the Group Discussion Forum (FGD):

*“The publication of this textbook is very helpful and useful for students. Lots of interesting research and studies, ranging from science, natural science, and related to Islam.”* (Response 5 FGD, 2018)

This book consists of 12 chapters. Each chapter is integrated with a verse in the Alquran. The contents of the integration of science and Islam are presented in Table 4 below:

Table 4. Contents of Integration of Biological Materials with Islamic Teachings (Alquran)

Chapter	Subject matter	Learning Outcome	Surah	Content	Relationship with Biology
1	Biology as a science	a) Understanding the definition of Biology	QS Ali Imran: 190.	3:190 Lo! In the creation of the heavens and the earth and (in) the difference of night and day are tokens (of His Sovereignty) for men of understanding,	In Surah Ali Imran, Allah created the earth and the sky a. Earth is the source of life b. Biology is the study of living things that live on earth
		b) Understanding the characteristics of Biology			
		c) Understanding the scope of Biology			
		d) Explain the scientific structure, object, and development of Biology in Islam			
			Q Al-ahqof: 23. (Meeftha, 2015a)	46:23 He said: The knowledge is with Allah only. I convey unto you that wherewith I have been sent, but I see you are a folk that know not.	In Al-ahqof, knowledge belongs to Allah, including physics and metaphysics Allah taught Adam about all the names of goods/objects on earth
			QAlbaqarah: 30-31. (Meeftha, 2015b)	2:30 And when thy Lord said unto the angels: Lo! I am about to place a viceroy in the earth, they said: Wilt thou place therein one who will do harm therein and will shed blood, while we, we hymn Thy praise and sanctify Thee? He said: Surely I know that which ye know not.  2:31 And He taught Adam all the names, then showed them to the angels, saying: Inform Me of the names of these, if ye are truthful.	Adam sebagai manusia yang cerdas dapat menyebut berbagai



Chapter	Subject matter	Learning Outcome	Surah	Content	Relationship with Biology
2	Cells and Viruses	<ul style="list-style-type: none"> <li>a) Explain the meaning of cell</li> <li>b) Describe the structure or arrangement of cells</li> <li>c) Describe the properties of cells</li> <li>d) Explain the difference between plant cells and animal cells</li> <li>e) Explain the structure of the characteristics, structure, and reproduction of viruses</li> <li>f) Cells in the study of the Alquran</li> </ul>	<p>QS at-Taghabun: 3. (Meeftha, 2014).</p> <p>QS. Al-Baqarah [2]: 26).</p>	<p>64:3 He created the heavens and the earth with truth, and He shaped you and made good your shapes, and unto Him is the journeying.</p> <p>2:26 Lo! Allah disdaineth not to coin the similitude even of a gnat. Those who believe know that it is the truth from their Lord; but those who disbelieve say: What doth Allah wish (to teach) by such a similitude? He misleadeth many thereby, and He guideth many thereby; and He misleadeth thereby only miscreants;</p>	<ul style="list-style-type: none"> <li>a) Viruses are transitional creatures</li> <li>b) In that verse, Allah describes the formation of creatures with various appearances</li> <li>a) Viruses have various forms</li> <li>b) One example of a virus is Dengue Hemorrhagic Fever is an acute disease with clinical manifestations of bleeding that causes shock that leads to death. (Trovancia, Sorisi, &amp; Tuda, 2016)</li> <li>c) Allah created a small virus, for example the Corona virus which is 100 nanometers in size</li> </ul> <p>And the Albaqarah verse explains that Allah created creatures smaller than mosquitoes</p>
3	The structure of animal and plant tissues	<ul style="list-style-type: none"> <li>a) Describe plant tissue</li> <li>b) Describe the structure and function of plant tissues</li> <li>c) Study of muscle tissue in the Alquran</li> </ul>	<p>QS Al Mu'minuun: 14</p>	<p>23:14 Then fashioned We the drop a clot, then fashioned We the clot a little lump, then fashioned We the little lump bones, then clothed the bones</p>	<ul style="list-style-type: none"> <li>a) In the human body, bones and muscles play an important role in moving the human body.</li> <li>b) Bones are meaningless without muscles and muscles are meaningless without bones.</li> </ul>

Chapter	Subject matter	Learning Outcome	Surah	Content	Relationship with Biology
4	Biodiversity	<ul style="list-style-type: none"> <li>a) Knowing the level of biodiversity</li> <li>b) Classifying ecosystem types</li> <li>c) Knowing Indonesia's biodiversity</li> <li>d) Explain the richness of flora and fauna of Indonesia</li> <li>e) Explaining the distribution of Indonesia's biodiversity</li> <li>f) Explaining the study of biodiversity in the Alquran</li> </ul>	QS Al Baqarah: 26-27	<p>with flesh, and then produced it as another creation. So blessed be Allah, the Best of creators! 2:26 Lo! Allah disdaineth not to coin the similitude even of a gnat. Those who believe know that it is the truth from their Lord; but those who disbelieve say: What doth Allah wish (to teach) by such a similitude? He misleadeth many thereby, and He guideth many thereby; and He misleadeth thereby only miscreants; 2:27 Those who break the covenant of Allah after ratifying it, and sever that which Allah ordered to be joined, and (who) make mischief in the earth: Those are they who are the losers.</p>	<ul style="list-style-type: none"> <li>c) So muscles and bones are interdependent. In the Alquran has explained the stages of formation of a baby.</li> <li>a) The existence of biodiversity in an area plays a major role in maintaining ecosystem processes, such as the cycle of substances, and the flow of energy (Satriadi&amp;Aryadi, 2016).</li> <li>b) On a broad scale, biodiversity is able to maintain river flow and climate stability. Can be seen in the letter Al Baqarah verses 26-27</li> </ul>
5	Metabolism	<ul style="list-style-type: none"> <li>a) Knowing the role of enzymes in metabolic processes</li> <li>b) Knowing the process of carbohydrate catabolism and anabolism</li> <li>c) Knowing the study of metabolism in Islam</li> </ul>	QS Yasin:80	36:80 Who hath appointed for you fire from the green tree, and behold! ye kindle from it.	<ul style="list-style-type: none"> <li>a) Anabolic reactions are biochemical reactions carried out by cells to arrange cell components, such as amino acids, nucleic acids, and others (Yuwono, 2011).</li> <li>b) One example of anabolism is photosynthesis, which requires chlorophyll and light. Can be seen in the letter Yasin</li> </ul>
6	Nervous and	<ul style="list-style-type: none"> <li>a) Know the nervous system</li> </ul>	Al-'Alaq: 15-16	96:15 Nay, but if he cease	<ul style="list-style-type: none"> <li>a) In the forehead area at the</li> </ul>

Chapter	Subject matter	Learning Outcome	Surah	Content	Relationship with Biology
	endocrine system	and the endocrine system (hormones) b) Describe the endocrine system c) Activities in the view of Islam		not We will seize him by the forelock 96:16 The lying, sinful forelock	front of the head there is a center for higher-order thinking activities in humans. b) There is a nervous system in that area.
7	Digestive system	a) Students know the human digestive organs b) Students explain the digestive glands c) Students know abnormalities/diseases in the digestive system d) Students explain the naqli proposition of the digestive system	QS Abasa: 24-32	80:24 Let man consider his food: 80:25 How We pour water in showers 80:26 Then split the earth in clefts 80:27 And cause the grain to grow therein 80:28 And grapes and green fodder 80:29 And olive-trees and palm-trees 80:30 And garden-closes of thick foliage 80:31 And fruits and grasses: 80:32 Provision for you and your cattle.	a) Surah Abasa verse 24-32 which describes the food that is digested by the stomach b) The stomach is a digestive organ that is used for chemical and physical digestion
8	Reproduction system	a) Knowing the Male Reproductive Organs b) Knowing the female reproductive organs c) Explain the process of Pregnancy and Childbirth d) Knowing disorders and disorders in the reproductive system e) Explaining Reproductive health and f) Explaining sexuality from an	Q.S. al-Rum: 21	31:21 And if it be said unto them: Follow that which Allah hath revealed, they say: Nay, but we follow that wherein we found our fathers. What! Even though the devil were inviting them unto the doom of flame?	a) The verse is very famous which explains the creation of humans in pairs b) Reproduction involves both male and female genitalia

Chapter	Subject matter	Learning Outcome	Surah	Content	Relationship with Biology
9	Blood circulation system	<p>Islamic perspective</p> <p>a) Human blood circulation system</p> <p>b) blood circulation mechanism</p> <p>c) Diseases and disorders of blood circulation</p> <p>d) The blood circulation system in Islam</p>	QS An-Nahl: 66	16:60 For those who believe not in the Hereafter is an evil similitude, and Allah's is the Sublime Similitude. He is the Mighty, the Wise.	<p>a) In the verse mentions the word blood</p> <p>b) Blood is a fluid that is useful for carrying nutrients from food</p> <p>c) In the area there are white blood cells, red blood cells, platelets, and platelets.</p>
10	Genetic Principles	<p>a) Mendel's law</p> <p>b) Deviations from Mendel's Laws</p> <p>c) Genetics in Islam</p>	QS. An Nisaa: 23	4:33 And unto each We have appointed heirs of that which parents and near kindred leave; and as for those with whom your right hands have made a covenant, give them their due. Lo! Allah is ever Witness over all things.	<p>a) Among the women who are forbidden to marry are those who still have a kinship relationship</p> <p>b) Marriage between relatives will give rise to Inborn error of Metabolism, Wilson's Disease, Taysacs disease, laprae, andAlkaptunoria.</p>
11	Evolution	<p>a) Evolution Figure</p> <p>b) Hints of Evolution</p> <p>c) Mechanism of Evolution</p> <p>d) Islamic View of the Theory of Evolution</p>	<p>QS Albaqarah: 30;</p> <p>QS Ali Imran: 59</p>	<p>2:30 And when thy Lord said unto the angels: Lo! I am about to place a viceroy in the earth, they said: Wilt thou place therein one who will do harm therein and will shed blood, while we, we hymn Thy praise and sanctify Thee? He said: Surely I know that which ye know not.</p> <p>3:59 Lo! the likeness of Jesus with Allah is as the likeness of Adam. He created him of dust, then He said unto him: Be! and</p>	<p>a) Allah created humans as caliphs on earth</p> <p>b) Allah created man from clay</p> <p>c) Alhujurat explained that humans were created into tribes and nations</p>

Chapter	Subject matter	Learning Outcome	Surah	Content	Relationship with Biology
12	Bioteknologi	<ul style="list-style-type: none"> <li>a) History of Biotechnology Development</li> <li>b) Biotechnology Engineering</li> <li>c) Application of Biotechnology in Daily Life</li> <li>d) Islam in Attitude to Cloning</li> </ul>	QS. Al-Mu'minun (23): 12-14	<p>he is.</p> <p>23:12 Verily We created man from a product of wet earth;</p> <p>23:13 Then placed him as a drop (of seed) in a safe lodging;</p> <p>23:14 Then fashioned We the drop a clot, then fashioned We the clot a little lump, then fashioned We the little lump bones, then clothed the bones with flesh, and then produced it as another creation. So blessed be Allah, the Best of creators!</p>	<ul style="list-style-type: none"> <li>a) One of the results of biotechnology is cloning</li> <li>b) This technology combines ovum cells with somatic cells.</li> <li>c) The verse of Al-mu'minun describes the creation of man in detail</li> </ul>

The results of data analysis obtained that the data was declared valid and practical. However, it is necessary to improve the draft textbook that has been developed based on input from material experts, media, and students. Continuous improvement will make this textbook truly a work that is unique and different from other works.

According to first validator in the preparation of the book, it is necessary to add a concept map at the beginning of each chapter. The validity of a textbook is a requirement so that the developed textbook can be implemented properly. This is in line with the results of previous research conducted by Aziza showing the results of validation by education experts, material experts, and Biology teachers showing that textbooks are declared very valid causing textbooks to be implemented in learning activities (Aziza, 2016). However, in the validator assessment process, the draft that was presented to the validator did not include a concept map at the beginning of the lesson. Enter this validator if it can be fulfilled. This is related to the theory which states that textbooks filled with concept maps are easier to understand. The results showed that mastery of basic biotechnology concepts increased along with the value of concept maps (Purwianingsih et al., 2010). Concept maps in books can increase motivation, cognitive, creative thinking skills, and learning achievement (Supriyanto, 2010; Wardhani et al., 2014; Wiyarsi & Sutiman, 2009).

In the view of the second validator, textbooks need to be reproduced in Arabic writing and pictures. This was also conveyed by the participants of the Research FGD, the following semester 1 science students:

“This basic Biology textbook has a good impact on students, because it integrates Islamic content which presents naqli and legal arguments. So in addition to studying Biology, we also understand the theory and material from an Islamic perspective. For suggestions, the writing layout and image clarity can be improved.” (Response 2 FGD, 2018).

The validator suggests inserting a translation of a snippet of a verse from the Alquran. This input is certainly very good to give the uniqueness of this textbook. This book was deliberately created with the aim of providing differences in Biology science at PTKIN and PTU.

Students generally expressed a positive response to the development of this textbook. The Islamic-integrated Basic Biology textbook will open up students' horizons that there is no longer a dichotomy between science and the Alquran. This can be seen in the response from the following FGD:

“This book can make it easier for students to use it as a guide for learning, especially students at IAIN Kudus, from the level of many basic Biology textbooks, it often makes students reluctant to study it, with the practicality of

learning motivation, it can open the student's mindset. From the Islamic level that the integration of Islam, Biology textbooks can be entered by including the verses of the Alquran into the subject matter to deepen and strengthen the Islamic level of understanding the resulting meaning. Biology studies various problems related to various phenomena of living things. Therefore, observing the phenomena of the universe to make inspiration with the development of science as signs of Allah's power and make it submissive and obedient to Him."(Response 9 FGD, 2018).

Allah created this universe as a lesson for people who want to think. The truth of the Alquran can be explained rationally by the theory of knowledge, especially Biology. However, if you look closely, there are many theories put forward by the west which do not contradict the content of the Alquran. For this reason, this book is here to shift the paradigm. This can be seen in Responde

On the other hand, students also provide criticism and suggestions for the development of textbooks. The points were deliberately recorded including writing, image proportions, unattractive presentations, published and some of them were placed in the campus library to become a source of reference for students in completing lecture assignments. It was also conveyed by previous researchers that the presentation of textbooks is very important to attract the attention of students or students (Himala, 2016).

The integration side in the preparation of this textbook is in each chapter. This book consists of 12 chapters and each chapter is also accompanied by practice questions to enrich knowledge and check the level of student understanding after studying each chapter. Another characteristic, for example in this book, is that images from the internet and from personal documents are inserted, so that the display of images will give the same perception of Biology material. The presentation of graphs and charts is also given especially in the chapter on Metabolism and Biotechnology because there is a lot of procedural knowledge rather than conceptual knowledge.

## **CONCLUSION**

Basic Biology textbooks based on the integration of science and Islam at the Biology Education Study Program at IAIN Kudus were declared valid with very good criteria. Basic Biology textbooks based on the integration of science and Islam at the Biology Education Program of IAIN Kudus are stated to be practical with very good criteria. The content of this book consists of 12 chapters, namely biology as a science, cells and viruses, tissue structure of animals and plants, biological diversity, metabolism, nervous and endocrine systems, digestive systems, reproductive systems, circulatory systems, principles of genetics, evolution, and biotechnology. The most important point of the integration Al quran and science is, how the verses of Quran can described base on

science, For example, in Surah Yasin verse 80, it is explained about green plants, which if studied in biology, green leaves are due to the content of chlorophyll in the leaves, which can convert sunlight into energy in the process of photosynthesis.

The material is then inserted verses scattered in the Alquran.

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