

Connotations of the Word 'fruit' in the Holy Quran: An Analytical Study

Salahaldeen Mohammad AlBzour (Corresponding author)

Ministry of Education, The Hashemite Kingdom of Jordan, Zarqa, P.O. Box 3931 Zip code 13111, Jordan

Tel: 962-788-105-611 E-mail: salaheddin.72@hotmail.com

Received: January 28, 2017	Accepted: February 8, 2016	Published: February 28, 2017
doi:10.5296/ijl.v9i1.10660	URL: http://dx.doi.org/10.5296/ijl.v9i1.10660	

Abstract

The rhetorical language is one of the miraculous matters in the Holy Quran and the term 'fruit' is eloquently used in the Holy Quran. In this research, the analytical method has been followed that attempts to make use of statistical analysis of the word 'fruit' as mentioned in the Holy Quran. This research aims to draw special attention to the significances of the word 'fruit' in the Holy Quran and to clarify what the place of revelation of surahs, the context of verses and the addressee could add to the connotations of the word 'fruit'. Accordingly, two responses have been adopted according to the meanings of the word 'fruit' to achieve the aims, first, connotations of the word 'fruit' as the sweet and juicy part of a plant, second, connotations of the word 'fruit' as useful crops and others. Anyway, the results show that the word 'fruit' is foremost used to indicate the reward of the people of Paradise and to indicate Allah's ability in creating, then respectively comes the others. In addition to, with reference to the place of revelation and the addressee, the results bring to light that these things add extra information to the connotations and make the word 'fruit' more meaningful. Finally, the results display that the connotations of the word 'fruit' can sometimes be understood within the same context where the word is mentioned in and it is necessary to refer to previous contexts to grasp the connotations at other times.

Keywords: the Holy Quran, Meccan surah, Medinan surah, verse, fruit, paradise



1. Introduction

Almighty Allah (God) has revealed the Holy Quran to Prophet Muhammad (SAWA: sallallahu alayhi wa salaam (may God's prayers and peace be with him). The Holy Quran is the great miracle that is still immortal until the present age of about 1438 years. The Holy Quran is a link between a person and his Lord and in it there are details and expositions for everything. In this respect, Almighty Allah said, "-And We have sent down to you the Book (the Qur'an) as an exposition of everything-" [16:89] Almighty Allah has mentioned in His Holy Book a lot of things, for example, and not as a limitation, He has mentioned the plants and food in many verses. When Almighty Allah has created human beings, He has created around them all the necessities of life that ensure the continuity in a prosperous life not only for the human beings, but also for other creatures.

Almighty Allah said, "And indeed We have honoured the Children of Adam, and We have carried them on land and sea, and have provided them with *At-Tayyib* $\hat{\alpha}t$ (lawful good things)-" [17:70] Fruit is considered one of these At-Tayyib $\hat{\alpha}t$ that has been mentioned in the Holy Quran by Almighty Allah. Fruit has been known since ancient times by humans. It is deemed one of the oldest foods that has been eaten by human beings and other creatures. Furthermore, fruit is considered as a main dish for most people because of its great benefits. Islam.Ru in English (2014) states, "Holy Quran is one of the reference books describing the importance of plants used for different ailments in various verses."

One of the Quranic miracles is the Linguistic miracle that Allah has defied with it Mecca's disbelievers who lived with Muhammad (SAWA). At that time, Arabs were at high level of using the rhetorical language, so the Holy Quran has come with its rhetorical miracle, in this respect, Allah said, Say: "If the mankind and the jinn were together to produce the like of this Qur'ân, they could not produce the like thereof, even if they helped one another." [17:88] According to Haroun (2005), Arabs were very famous in elocution and linguistics and although the Quran has been sent down in Arabic, Arabs were not able to produce an equivalent the Quran (p. 8). Differentiation between the Quranic terms is not easy and here lies the problem, it is necessary to absorb all of the contexts or verses in one topic to explore the purposes of the repeated Quranic term. So. What are the intended connotations of repeating the word 'fruit' in the Holy Quran? The researcher notes ,before embarking upon the research, that the results of the current research reflect the diligence and understanding of the researcher.

1.2 Topic of the Study

The current study gives prominence to a word that has particularly been repeated forty times in the Holy Quran. This word is: fruit.

1.3 Aims of the Study

This study aims to achieve, as much as possible, the following:

1. The researcher attempts to examine the great connotations of mentioning the word 'fruit' in the Holy Quran.



- 2. The researcher attempts to clarify the relationship between the place of revelation of the surahs, the context of the verse and the addressee.
- 3. This study is considered as a way to contemplate and reflect on the Holy Quran.

1.4 Study Questions

The following questions are raised to achieve the aims:

- 1. What are the intended aims of mentioning the word 'fruit' in the Holy Quran?
- 2. Does the understanding of the Holy Quran depend on knowing the place of revelation of the surahs and the conditions of the addressee at the time of Quran revelation?
- 3. Can the intended connotations of a Quranic term be understood within the same verse?

1.5 Method of the Study

The researcher has followed an analytical method that attempts, as much as possible, to make use of the statistical analysis of the word 'fruit' as mentioned in the surahs of the Holy Quran under study. The sources of this study are the verses themselves as a primary source tracing them back to their places by mentioning the name of the surahs, verses number and places of revelation as well as the references books about fruits; and besides, the exegesis books, the Internet and journals.

2. Theoretical Considerations

In analysing the word 'fruit' in the Holy Quran, it might be paid attention to three aspects: the notion of the Holy Quran, people of Mecca and Medina and the different meanings and forms of the word 'fruit'. These are explained in details in the next sections.

2.1 The Notion of the Holy Quran

The Holy Quran is the miracle of Prophet Muhammad (SAWA) and it has been sent down by the Angel Gabriel. According to Tzortzis (2008) "Linguistically the word 'Qur'an' means 'reading' and came to be referred to as 'the text which is read'." (p. 4). Moreover, Quran has no a translated name, Quran is Quran. According to Yuksel, al-Shaiban, & Schulte-Nafeh (2007),

Al-Quran is used only for a particular book given to Muhammad. So, the Quran is unique. There is no other Quran besides the Quran. Some may suggest translating the word Quran as "reading," but the word "reading" is not unique, but the Quran is. (p.14)

The Holy Quran starts with Surah Al-Fâtihah (The Opening) and ends with Surah An-Nâs (Mankind). In addition to, the Holy Quran consists of thirty parts that include one hundred and fourteen surahs, eighty-six of them are Meccan and twenty-eight are Medinan. AlBzour (2016) explains that "The Holy Quran is divided into thirty Ajza' (plural of Juz': part) and these Ajza' consist of 114 surahs" (p. 103). These surahs consist of verses (Ayat: plural of Aya). The revelation of the Holy Quran took twenty-three years, thirteen years were in Mecca (city in Saudi Arabia) and ten years were in Medina (city in Saudi Arabia). Almighty Allah



said, "And (it is) a Qur'ân which We have divided (into parts), in order that you might recite it to men at intervals. And We have revealed it by stages (in 23 years)." [17:106] Furthermore, the Holy Quran is characterized by a number of properties, for example, it is the last heavenly book, it is directed to all people and it is guaranteed to be conserved by Almighty Allah. In this respect, Almighty Allah said, "Verily, We, it is We Who have sent down the Dhikr (i.e. the Qur'ân) and surely, We will guard it (from corruption)". [15:9] Additionally, Quran has many names, for instance, Al-Kitab (The Scripture or Book) and Al-Furqan (The Criterion).

The surahs of the Holy Quran are classified into two categories depending on the place where the surah was revealed upon Prophet Muhammad (SAWA). And in this case the surah is Meccan if it is revealed in Mecca and on the other hand it is Medinan if it is revealed in Medina. Each of these surahs has its own features that distinguish them from each other. The features of Meccan Surahs as stated by Bzour & Mohammad (2015) are about "the Islamic faith (Aqīda) and they pay attention to the details of the stories of the Prophets and previous nations." (p. 92) On the other hand, the Medinan Surahs as also stated by Bzour & Mohammad (2015) are about "legislation and clarify the terms of Halal that is permissible to do and use in Islam or Haram that is forbidden to do or use in Islam." (p.92) Another feature as stated by Ali (2010) is that Meccan Surahs are shorter than Medinan ones (p. 41) Another key points, the features of Meccan Surahs are stated by AlBzour (2016)

First, they focus on the oneness of Allah because people in that period worshipped and believed in more than one Allah (God). Second, they expose the works of the Mushrikun (polytheists). Third, they mention the stories of Prophets. Fourth, they use the power of words and phrases as well as the shortening of their phrases. Fifth, they use the phrase 'O people ! or O mankind !'. (p. 104)

The features of Medinan Surahs are also explained by AlBzour (2016)

First, they mention the hypocrites. Second, they use the phrase 'O you who believe! Or Believers !.Third, they display the rules of governance, the means of legislation, the limits, the hajj (pilgrimage), the transactions, the worships and more. (p.104)

2.2 People of Mecca and Medina

This section focuses on people's conditions and their beliefs in Mecca and Medina during the revelation of the Holy Quran. The life of Meccan people is characterized by several things that remained until the manifest victory of Mecca by Prophet Muhammad (SAWA) and his companions. In this respect, Nafziger & Walton (2003) states, "Having unrestricted access to Mecca, Muhammad entered the sacred temples of the idolaters and smashed the idols, said to have numbered 360" (p.11) To start with, in terms of worship: Meccan people worshiped many gods, for example, Al-Lâ, Al-'Uzzâ and Manât. Allah said, "Have you then considered Al-Lâ, and Al-'Uzzâ (two idols of the pagan Arabs), And Manât (another idol of the pagan Arabs), the other third? " [53:19-20] According to SADIQ (2014) "They worshipped stones and trees. Statues of pagan gods were installed around the Ka'ba, the structure that was originally intended to honor the one and only God of the universe." (p. 14) Second, the beliefs of Meccan people were irrational, for example, according to Hanapi



(2013)

There were also beliefs that were regarded as nonsensical and imaginative such as fortune telling and observing the direction of birds flying. If the birds flew in the left direction then it is an omen that the journey was perilous and not safe and vice versa. (p. 215)

Another example of the beliefs of Meccan people is the division of livelihood between Allah and their gods. In this respect, Allah said, "And they assign to Allâh a share of the tilth and cattle which He has created-" [6:136] In addition to, Meccan people were well-known by killing their children and hatred for Girls. Allah said, "And so to many of the Mushrikûn (polytheists) their (Allâh's so-called) "partners" have made fair-seeming the killing of their children-" [6:136] and also He said, "And when the news of (the birth of) a female (child) is brought to any of them, his face becomes dark, and he is filled with inward grief!" [16:58]. Another key point, Meccan people were hardhearted and they annoyed and hurt Prophet Muhammad (SAWA) and his companions as well as they threatened to kill Prophet Muhammad (SAWA) and even they tried to kill him. And there are other things that cannot be taken in this study. On the other hand, Medina knew a number of faiths and religions before Islam, including Paganism and Judaism and there lived Jews, Aws and Khazraj (tribes). Many conflicts and wars were hit Medina before the migration of Prophet Muhammad by Aws and Khazraj. Prophet Muhammad (SAWA) and his companions migrated to Medina in batches and the companions who reached before him prepared for the new religion (Islam). When Muhammad (SAWA) and his companion Abu Bakr (may Allah be pleased with him) reached Median they received a great warm reception by Aws and Khazraj. This shows that people of Medina were kind-hearted, unlike the people of Mecca who treated the Prophet and his companions cruely and that was absolutely Allah's will to be the beginning of founding the Islamic religion.

2.3 The different meanings and forms of the word 'fruit'

This section highlights on the different meanings of the word 'fruit' and it forms.

Grammatically, the word 'fruit' can be a countable noun or an uncountable noun according to the intended meaning in the context and this is clarified in the following examples:

- **Fruit** is necessary for your health.
- Bananas, oranges, apples and other **fruits** are produced in Jordan.

In first example, the word 'fruit is' used as an uncountable noun to express the necessity of fruit for health in general with no part left out as an entire group and that means the word 'fruit' is used as food. In this respect, Nelson (2002) states, "Uncountable nouns refer to things which are considered as indivisible wholes" (p. 35). On the other hand, in second example, the word 'fruits' is used as a countable noun to express the different kinds of fruits. Altenberg & Vago (2010) explains, "Many nouns can be used as either count nouns or as noncount nouns, depending on how they are being used in a specific sentence" (p. 16)

Semantically, the word 'fruit' has different meanings according to Martin, Campbell, &



Ruberte, (1987) "In the botanical sense, all flowering plants (monocotyledons and dicotyledons) produce fruits. These are the results of reproductive growth, generally the structures developed from flowers or from clusters of flowers" (p. 1). Additionally, Oxford Wordpower (2002) states that the word 'fruit' is countable and uncountable and it means "the part of a plant or tree that contains seeds and that is used as food: *Try and eat more fresh fruit and vegetables*." (p. 308). And also as stated in Oxford Wordpower (2002) the word 'fruit' as a countable noun means "the part of any plant in which the seed is formed" (p. 308) and "when we say a fruit we mean ' a type of fruit': *Most big supermarkets sell all sorts of tropical fruits*." (p. 308). Moreover, according to the Chambers dictionary the word 'fruit' is defined as

- 1. the fully ripened ovary of a flowering plant, containing one or more seeds that have developed from fertilized ovules, and sometimes including associated structures such as the receptacle.
- 2. an edible part of a plant that is generally sweet and juicy, especially the ovary containing one or more seeds, but sometimes extended to include other parts, eg the leaf stalk in rhubarb.
- 3. plant products generally the fruits of the land.

As described previously, the word 'fruit' carries more than one meaning, including a general meaning 'plant products' and including a particular meaning 'a plant that is generally sweet and juicy'. To make it more clear, all fruits are plant products, but not all plant products are fruits. In Arabic, the same thing, the word can carry more than one meaning. When reading the Holy Quran, you find the word 'thamarātti' which means 'the fruits' carrying the meaning 'all plants products or crop'. In addition to, you find the word 'thamarihi' which means 'its fruit' or 'its crop' and also you find the word 'thamaratin' which means 'a fruit'. On the other hand, when the carrying meaning is an edible part of a plant that is generally sweet and juicy a word like 'fawākih' which means 'fruits' and a word like 'fākiha' which means 'fruits' are used in the Holy Quran. The difference between the two words 'fawākih' and 'fākiha' is that the word 'fākiha' can be used as a singular, a plural or even as a geminated noun, but the word 'fawākih' is a plural form and so the word 'fākiha' carries the general meaning because of its three forms.

3. Connotations of the word 'fruit' in the Holy Quran

This section gives special attention to the word 'fruit' and its connotations in the Holy Quran. To do this, it might be paid attention to two main responses according to the meanings of the word 'fruit':

- 1. Connotations of the word 'fruit' as the sweet and juicy part of a plant.
- 2. Connotations of the word 'fruit' as all plants products (crops) and others.

3.1 The First Response

Connotations of the word 'fruit' as the sweet and juicy part of a plant



This section focuses on the connotations of the word 'fruit' as the sweet and juicy part of a plant that means in Arabic 'fawākih' and 'fākiha' that is repeated 14 times. In order to do this, it might be paid attention to two matters: first, fruit and Paradise, second, Allah's ability and provision.

3.1.1 Fruit and Paradise

Abu Huraira reported that Allah's Apostle (SAWA) said: "Allah, the Exalted and Glorious, said: I have prepared for My pious servants which no eye (has ever) seen, no ear has (ever) heard and no human heart has ever perceived those bounties leaving apart (those bounties) about which Allah has informed you" [Sahih Muslim: 2824 b] In consideration of that, Paradise bliss cannot be expected and imagined, but Allah has mentioned in His Holy Quran examples about the rewards of the people of Paradise and one of these rewards is fruit. This section sheds light on the word 'fruit' and its relationship to Paradise and that is repeated 9 times in the Holy Quran.

Surah & Verse No.	Place of revelation	Forms of 'fruit' in English / Arabic	Meaning	The word 'fruit' is associated with
Y â-S îi 36: 57	Meccan	fruits / fākihatun	tasty fruits that one amuse him/herself with	the reward of the people of Paradise, enjoyment
S âd 38: 51	Meccan	fruits / fākihatin	tasty fruits that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Az-Zukhruf 43: 73	Meccan	fruits / fākihatun	tasty fruits that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Ad-Dukh ân 44: 55	Meccan	fruit / fākihatin	tasty fruit that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Ar-Rahm ân 55: 52	Medinan	fruit / fākihatin	tasty fruit that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Ar-Rahm ân 55: 68	Medinan	fruits / fākihatun	tasty fruits that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Al-Wâqi'ah 56: 20		fruit / fākihatin	tasty fruit that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Al-Wâqi'ah 56: 32	Meccan	fruit / fākihatin	tasty fruit that one amuse him/herself with	the reward of the people of Paradise, enjoyment
Al-Mursal â t 77: 42	Meccan	fruits / fawākiha	tasty fruits that one amuse him/herself with	the reward of the people of Paradise, enjoyment

Table 1. Distribution of the word 'fruit' and its relationship to Paradise

To start with, it can be seen from table 1 that the word 'fruit' has eloquently been used 9 times (9 out of 14) in relation to Paradise. This relation is not shown in same contexts (verses)

Macrothink Institute™

that include the word 'fruit', but it is shown in the previous context(s) and this is confirmed by the phrases 'Verily, the dwellers of the Paradise, that Day, will be busy with joyful things' [Y âSîn: 55], 'This is a Reminder. And verily, for the Muttaq ûn (the pious) is a good final return (Paradise)' [Sâd: 49], 'This is the Paradise which you have been made to inherit because of your deeds which you used to do (in the life of the world)' [Az-Zukhruf: 72], 'Verily, the Muttaq ûn (the pious), will be in place of Security (Paradise)' [Ad-Dukh ân: 51], 'But for him who fears the standing before his Lord, there will be two Gardens (i.e. in Paradise)' [Ar-Rahmân: 46], 'And besides these two, there are two other Gardens (i.e. in Paradise)' [Ar-Rahmân: 62], 'In the Gardens of Delight (Paradise)' [Al-Wâgi'ah: 12], 'Verily, the Muttaq ûn (the pious) shall be amidst shades and springs' [Al-Mursal at: 41] Second, the word 'fruit' is magnificently used in relation to the reward of the people of Paradise and enjoyment and is used to tell about what the people of Paradise will have there and this is confirmed by the phrases 'They will have therein fruits (of all kinds) and all that they ask for' [Y âSîn: 57], 'therein they will call for fruits in abundance' [Sâd: 51], 'Therein for you will be fruits in plenty'[Az-Zukhruf: 73], 'They will call therein for every kind of fruit' [Ad-Dukhân: 55], 'In them (both) will be every kind of fruit in pairs' [Ar-Rahmân: 52], 'In them (both) will be fruits' [Ar-Rahmân: 68], 'And with fruit that they may choose' [Al-Wâqi'ah: 20], 'And fruit in plenty' [Al-Wâqi'ah: 32] and 'And fruits, such as they desire' [Al-Mursal â: 42] Third, it can also be seen from table 1 that 7 verses (7 out of 9) are Meccan where much talk about Meccan people in particular and for all people in general and 2 verses (2 out of 9) are Medinan where particularly much talk about Medinan people and absolutely for all people in general. Moreover, it is noticeable that after Allah had mentioned the rewards for the believers, He mentioned the rewards for the disbelievers and vice versa. Allah has clarified two types of people so that the disbelievers may return to Allah after knowing what will be waiting for them in Hell. Furthermore, It is also noticeable that some convenient words to the psyche have eloquently been used so that the believers will be happy when reading them and this is confirmed by phrases like '(It will be said to them): Salâm (peace be on you)', 'Enter Paradise, you and your wives, in happiness.', 'They will call therein for every kind of fruit in peace and security.' and 'Eat and drink comfortably for that which you used to do'. In addition to, there are phrases that are considered as reminders for the disbelievers of Mecca in particular and for all people in general and this is supported by verses like 'And indeed he (Satan) did lead astray a great multitude of you. Did you not, then, understand?' [Yâ-Sîn: 57] and 'Certainly, We have made this (Qur'an) easy in your tongue, in order that they may remember.' [Ad-Dukh an:55]

3.1.2 Fruit and Allah's ability and provision

Allah is the provider for all the needs of human beings and other creatures of food and drink.

Allah said, "Is not He (better than your so-called gods) Who originates creation, and shall thereafter repeat it, and Who provides for you from heaven and earth? Is there any *il* ∂h (god) with All ∂h ? Say: "Bring forth your proofs, if you are truthful." [An-Naml: 64] This section focuses on the word 'fruit' and its relationship to Allah's ability and provision that is repeated 5 times in the Holy Quran.



Surah & Verse No.	Place of revelation	Forms of 'fruit' in English & Arabic	Meaning	The word 'fruit' is associated with
Al-Mu'minûn 23: 19	Meccan	fruit / fawākihu	many types of fruit except the date-palms and grapes	provision
As-S âff ât 37: 42	Meccan	fruits / fawākihu	tasty fruits that one amuse him/herself with	provision in Paradise
At-Tûr 52: 22	Meccan	fruit / fākihatin	tasty fruit that one amuse him/herself with	provision in Paradise
Ar-Rahm ân 55: 11	Medinan	fruits / fākihatun	tasty fruits that one amuse him/herself with	Allah's ability, earthly graces
'Abasa 80: 31	Meccan	fruits / fākihatan	all useful crops	Allah's ability, provision

Table 2. Distribution of the word 'fruit' and its relationship to Allah's ability and provision

It can be seen from table 2, first, that the word 'fruit' is used 5 times (5 out of 14) in relation to Allah's ability and provision. This relation is not shown in the same contexts that include the word 'fruit', but it is marvellously shown in the previous contexts except 1 verse in surah 'Abasa that is shown in next context. This is supported by the phrases 'And We sent down from the sky water (rain) in (due) measure, and We gave it lodging in the earth, and verily, We are Able to take it away' [Al-Mu'minûn: 18], 'For them there will be a known provision (in Paradise)' [As-Sâffât: 41], 'Verily, the Muttaq ûn (the pious) will be in Gardens (Paradise)' [At-Tûr: 17], 'And the earth: He has put down (laid) for the creatures' [Ar-Rahmân: 10] and '(To be) a provision and benefit for you and your cattle' ['Abasa: 32]. Second, the word 'fruit' is amazingly used to tell about what is provided for the creatures on earth and for the believers in Paradise and this is confirmed by the phrases 'Then We brought forth for you therewith gardens of date-palms and grapes, wherein is much fruit for you, and whereof you eat' [Al-Mu'minûn: 19], 'Fruits; and they shall be honoured' [As-S aff at: 42], 'And We shall provide them with fruit and meat such as they desire' [At-T ur: 22], 'Therein are fruits' [Ar-Rahmân: 11], and 'And fruits and herbage' ['Abasa: 31] Third, it is shown in table 2 that 4 verses (4out of 5) are Meccan where absolutely and particularly much talk about Meccan people who lived at that time and who did not believe in the oneness of Allah and for all people in general in all times. Whereas, 1 verse is Medinan where much talk about the believers of all times, of course, including the believers who did live at Muhammad's (SAWA) period.

3.2 The Second Response: Connotations of the word 'fruit' as useful crops and others

This section sheds light on connotations of the word 'fruit' as useful crops and others that means in Arabic 'thamara', 'thamar', or 'thamarāt' that is repeated 26 times. To do this, it



might be paid attention to five matters: first, fruit and Allah's ability, second, fruit and examples and parables, third, fruit and provision, fourth, fruit and Paradise, fifth, fruit and trials and punishments.

3.2.1 Fruit and Allah's ability

Although Allah's signs were very clear, Meccan people did not believe in one god. Allah has pointed out to these signs in His Book that indicate His ability in creating. This section focuses on the word 'fruit' and its relation to Allah's ability that is repeated 9 times in the Holy Quran.

Surah & Verse No.	Place of revelation	Forms of 'fruit' in English & Arabic	Meaning	The word 'fruit' is associated with
Al-An'âm 6: 99	Meccan	fruits / thamarihi	all useful crops	Allah's ability
Al-An'âm 6: 141	Meccan	fruit / thamarihi	all useful crops	Allah's ability
Al-A'râf 7: 57	Meccan	fruit / l-thamarāti	all useful crops	Allah's ability
Ar-Ra'd 13: 3	Medinan	fruits / l-thamarāti	all useful crops	Allah's ability
An-Nahl 16: 11	Meccan	fruit / l-thamarāti	all useful crops	Allah's ability
An-Nahl 16: 69	Meccan	fruits / l-thamarāti	the nectar of all kinds of crop flowers	Allah's ability
F âtir 35: 27	Meccan	fruits / thamarātin	all useful crops	Allah's ability
Y â-S în 36: 35	Meccan	fruit / thamarihi	fruits of date-palms and grapes	Allah's ability
Fussilat 41: 47	Meccan	fruit / thamarātin	all useful crops	Allah's ability

Table 3. Distribution of the word 'fruit' and its relationship to Allah's ability

It is shown in table 3 that the word 'fruit' is used 9 times (9 out of 26) in relation to Allah's ability. This ability is inimitability confirmed by phrases or words such as 'He Who sends down, 'We bring forth', 'He Who spread out', 'He Who produces', 'He Who sends the winds', He causes to grow' and 'He Who sends down water (rain)'. To start with, the word 'fruit' is eloquently used as all useful crops 7 times (7 out of 9) in relation to Allah's ability in 7 verses. This relation is uniquely shown in the same contexts where the word 'fruit' is



mentioned in and this is confirmed by the following phrases: 'It is He Who sends down water (rain) from the sky, and with it We bring forth vegetation of all kinds-Look at their fruits when they begin to bear' [Al-An'âm: 99], 'And it is He Who produces' [Al-An'âm: 141], 'And it is He Who sends the winds' and 'Then We produce every kind of fruit therewith' [Al-A'raf: 57], 'And it is He Who spread out the earth, and placed therein firm mountains and rivers and of every kind of fruits' [Ar-Ra'd: 3], 'With it (rain or water) He causes to grow for you the crops, the olives, the date-palms, the grapes, and every kind of fruit' [An-Nahl: 11], 'See you not that Allâh sends down water (rain) from the sky, and We produce therewith fruits of various colours', [Fâtir: 27], and 'To Him (Alone) is referred the knowledge of the Hour. No fruit comes out of its sheath, nor does a female conceive nor brings forth (young), except by His Knowledge' [Fussilat: 47] Second, the word 'fruit' is magnificently used once (1 out of 9) as the nectar of all kinds of crop flowers in relation to Allah's ability. This relation is not shown in the same context where the word 'fruit' is mentioned in and this is confirmed by 'And your Lord inspired the bees, saying: "Take you habitations in the mountains and in the trees and in what they erect. "Then, eat of all fruits, and follow the ways of your Lord made easy (for you)."-' [An-Nahl: 68-69] Third, the word 'fruit' is used once (1 out of 9) as fruits of date-palms and grapes in relation to Allah's ability. This ability is not shown in the same context that includes the word 'fruit' and this is supported by 'And We have made therein gardens of date-palms and grapes, and We have caused springs of water to gush forth therein. So that they may eat of the fruit thereof-' [Yâ-S n: 34-35]

Furthermore, 8 verses (8 out of 9) are Meccan where the speech is directed to Mecca's polytheists in particular and absolutely for all people in general, especially, for those who do not believe in Allah and who doubt the oneness of Allah. Allah's abilities are signs and this is confirmed in the previous surahs by phrases like 'Verily! In these things there are signs for people who believe' [Al-An'âm: 99], 'Then We produce every kind of fruit therewith. Similarly, We shall raise up the dead, so that you may remember or take heed' [Al-A'râf: 57], and 'Verily! In this is indeed an evident proof and a manifest sign for people who give thought.' [An-Nahl: 68-69] In addition to, 1 out of 9 verses is Medinan where the speech is directed to the believers of Medina in particular and for all believers in general.

3.2.2 Fruit and Examples and Parables

The Holy Quran abounds of giving examples and parables and this section focuses on the word 'fruit' and how it is associated with them. The word 'fruit' has been repeated 5 times with relation to giving examples and parables in the Holy Quran.

Table 1	Distribution	of the word	'franit'	and ita	rolation	whin to	airina	avomplag	ad noroblog
1 aute 4.	Distribution	of the word	IIIIII	and us	relations	sind to	SIMINE	examples a	
						- -	0.0	· · · ·	

Surah & Verse No.		Forms of 'fruit' in English & Arabic	Meaning	The word 'fruit' is associated with
Al-Baqarah 2: 266	Medinan	fruits / l-thamarāti	all useful crops	giving example



Ibr âh în 14: 25	Meccan	fruit / ukulahā (thamaraha)	all useful fruit	giving parable
Al-Kahf 18: 34	Meccan	fruit / thamarun	property or fruit	giving example
Al-Kahf 18: 42	Meccan	fruits / bithamarihi	properties or fruits	giving example
Muhammad 47: 15	Medinan	fruit / l-thamarāti	every sort of Paradise fruit	giving example

It is shown in table 4 that the word 'fruit' is inimitability used in relation to giving examples and parables 5 times (5 out of 26). First, the word 'fruit' is used 4 times (4 out of 5) in relation to giving examples in 3 surahs. In two surahs Al-Baqarah and Al-Kahf, this relation is not shown in the same context where the word 'fruit' is mentioned in, but it is shown in the previous context(s) as follows: In surah Al-Baqarah, Allah starts to give an example about spending money in verse 261: 'The likeness of those who spend their wealth in the Way of All ah, is as the likeness of a grain (of corn)-' and then Allah continues giving examples in the same surah in verse 264-265: 'O you who believe! Do not render in vain your Sadaqah (charity) by reminders of your generosity or by injury, like him who spends his wealth to be seen of men-' - 'And the likeness of those who spend their wealth seeking Allâh's Pleasure', next, Allah continues giving examples and resuming them in verse 266: 'Would any of you wish to have a garden with date-palms and vines, with rivers flowing underneath, and all kinds of fruits for him therein'. Second, in surah Al-Kahf: 34 and 42, the word 'fruit' is magnificently used here in relation to giving an example and this is confirmed in the same surah in verse 32: 'And put forward to them the example of two men' and then Allah continues talking about this example in verse 34: 'And he had property (or fruit) and he said to his companion', next, Allah has clarified what happened to this property or fruit in verse 42 and this is supported by the phrase 'So his fruits were encircled (with ruin)'. Third, in surah Muhammad: 15, the word 'fruit' is amazingly used in relation to giving an example about the people who will be in Paradise comparing them to the people who will live in Hell and this is confirmed in the same verse by the phrase 'The description of Paradise which the Muttaq ûn (the pious) have been promised- therein for them is every kind of fruit, and forgiveness from their Lord. (Are these) like those who shall dwell for ever in the Fire-'. Finally, in surah Ibrâhîm: 25, the word 'fruit' is used in relation to giving a parable and this is not confirmed in verse: 25 that includes the word 'fruit', but it is confirmed in verse 24 by the phrase 'See you not how Allâh sets forth a parable? A goodly word as a goodly tree-' and then Allah continues talking about this parable in verse 25 and this is confirmed by the phrase 'Giving its fruit at all times, by the Leave of its Lord, and Allâh sets forth parables for mankind-'.

Moreover, 3 verses (3 out of 5) are Meccan where the speech is particularly directed to both Meccan people and all people in general so that they could believe in the oneness of Allah and this is confirmed by phrase like 'and Allâh sets forth parables for mankind in order that they may remember' [Ibrâhîm:25] and this is also confirmed in surah Al-Kahf when Allah



finishing giving examples He said, 'And who does more wrong than he who is reminded of the Ay ât (proofs, evidence, verses, lessons, signs, revelations, etc.) of his Lord, but turns away from them-' [Al-Kahf:57] In addition to, 2 verses (2 out of 5) are Medinan where much talk about the believers and this is confirmed by the phrase 'O you who believe!' [Al-Baqarah:264] and 'The description of Paradise which the Muttaqûn' and absolutely the believers are the Muttaqûn.

3.2.3 Fruit and Provision

Allah said, "And no moving (living) creature is there on earth but its provision is due from All an-" [Hûd: 6] This section focuses on the word 'fruit' and its relationship to provision that is repeated 5 times in the Holy Quran.

Surah & Verse No.	Place of revelation	Forms of 'fruit' in English & Arabic	Meaning	The word 'fruit' is associated with
Al-Baqarah 2: 22	Medinan	fruits / l-thamarāti	all kinds of fruits and useful crops	Provision
Al-Baqarah 2: 126	Medinan	fruits / l-thamarāti	all kinds of fruits and useful crops	Provision
Ibr âh în 14: 32	Meccan	fruits / l-thamarāti	all kinds of fruits and useful crops	Provision
Ibr âh în 14: 37	Meccan	fruits / l-thamarāti	all kinds of fruits and useful crops	Provision
Al-Qasas 28: 57	Meccan	fruits / thamarātu	fruits of everything	Provision

Table 5. Distribution of the word 'fruit' and its relationship to provision

Table 5 shows that the word 'fruit' is marvellously used 5 times (5 out of 26) in relation to provision. This relation is shown in the same contexts where the word 'fruit' is mentioned in and this is supported by the following phrases: 'Who has made the earth a resting place for you, and the sky as a canopy, and sent down water (rain) from the sky and brought forth therewith fruits as a provision for you' [Al-Baqarah: 22], 'And (remember) when Ibrâhîm (Abraham) said, "My Lord, make this city (Makkah) a place of security and provide its people with fruits' [Al-Baqarah: 126], 'Allâh is He Who has created the heavens and the earth and sends down water (rain) from the sky, and thereby brought forth fruits as provision for you' [Ibrâhîm: 32], 'and (O Allâh) provide them with fruits so that they may give thanks' [Ibrâhîm: 37] and 'to which are brought fruits of all kinds, a provision from Ourselves' [Al-Qasas: 57].

Moreover, 3 of the previous verses (3 out of 5) are Meccan where the speech is particularly directed to Meccan people at that time and for all people in general to take heed and to thank



Allah and this is confirmed by the phrase 'so that they may give thanks'. In addition, 2 of the verses (2 out of 5) are Medinan where much talk about the believers.

3.2.4 Fruit and Paradise

The Holy Quran abounds of sentences that talk about Paradise and what the believers will have their and this section sheds light on the word 'fruit' and its relation to Paradise. The word 'fruit' is repeated 4 times with the previous relationship in the Holy Quran.

Surah & Verse No.	Place of revelation	Forms of 'fruit' in English & Arabic	Meaning	The word 'fruit' is associated with
Al-Baqarah 2: 25	Medinan	a fruit / thamaratin	a kind of Paradise fruit	the reward of the people of Paradise
Ar-Rahm ân 55: 54	Medinan	fruits / wajanā (thamar)	Paradise fruits	the reward of the people of Paradise
Al-H âqqah 69: 23	Meccan	fruits / qutūfuhā	cluster of Paradise fruits	the reward of the people of Paradise
Al-Ins ân 76: 14	Medinan	fruit / qutūfuhā	cluster of Paradise fruit	the reward of the people of Paradise

Table 6. Distribution of th	e word 'fruit'	and its relationship	o to Paradise
	e word muit	and its relationshi	

It can be seen from table 6 that the word 'fruit' is eloquently used 4 times (4 out of 26) in relation to Paradise. First, in surah Al-Bagarah: 25, the word 'fruit' is used in relation to Paradise and this is confirmed by the phrase 'And give glad tidings to those who believe and do righteous good deeds, that for them will be Gardens under which rivers flow (Paradise). Every time they will be provided with a fruit therefrom, they will say: "This is what we were provided with before,'. Second, in surah Ar-Rahmân: 54, the word 'fruit' is amazingly used in relation to Paradise and this is confirmed by the phrase 'and the fruits of the two Gardens will be near at hand' and the phrase 'the two Gardens' here refers to those that are mentioned in the same surah in verse 46: 'But for him who fears the standing before his Lord, there will be two Gardens (i.e. in Paradise).' Third, in surah Al-Hâqqah: 23, the word 'fruit' is used in relation to Paradise and this is supported by the verses 22 and 23: 'In a lofty Paradise,' and 'The fruits in bunches whereof will be low and near at hand.' Finally, the word 'fruit' is also amazingly used in surah Al-Ins an: 14 in relation to Paradise and this is supported when Allah talks about the recompense of the righteous in the same surah in verse 12: 'And their recompense shall be Paradise, and silken garments, because they were patient.', then, Allah continues talking about this recompense mentioning the word 'fruit' and this is supported by verse: 14 'And the shade thereof is close upon them, and the bunches of fruit thereof will hang low within their reach.' Another key point, 3 relations (3 out of 4) are not shown in the same contexts that include the word 'fruit' and these are: verse 54 of surah Ar-Rahm ân, verse 23 of surah Al-H âggah and verse 14 of surah Al-Ins ân, whereas 1 relation can be understood from the same context in verse 25 of surah Al-Baqarah.



Furthermore, 3 of the previous verses (3 out of 4) are Medinan where absolutely the speech is directed to the believers of all times and 1 verse (1 out of 4) is Meccan where absolutely much talk about the disbelievers, particularly, Meccan ones and all disbelievers in general. Another key point, is that, the verse that is Meccan (Al-Hâqqah) means 'the Day of Resurrection' and at that time Meccan people did not believe in the Day of Resurrection, they did not believe in the Holy Quran and they did not believe in the torment of the former people ; therefore, this surah has been sent down.

3.2.5 Fruit and Trials and Punishments

Allah said, "Know that All a is Severe in punishment and that All a is Oft-Forgiving, Most Merciful." [Al-Mâ'idah: 98] and also said, "Everyone is going to taste death, and We shall make a trial of you with evil and with good. And to Us you will be returned." [Al-Anbiyâ': 35] This section focuses on the word 'fruit' and its relationship to trials and punishments that is repeated 3 times in the Holy Quran.

Surah	Place of revelation	Forms of 'fruit' in English & Arabic	Meaning	The word 'fruit' is associated with
Al-Baqarah 2: 155	Medinan	fruits / l-thamarāti	all kinds of fruits and useful crops	a trial; test
Al-A'râf 7: 130	Meccan	fruits / l-thamarāti	all kinds of fruits and useful crops	a divine punishment (former people)
Saba' 34: 16	Meccan	fruit / ukulin (thamarin)	bitter bad fruit	a divine punishment (former people)

Table 7. Distribution of the word 'fruit' and its relationship to trials and punishments

It can be seen from table 7 that the word 'fruit' is inimitability used 3 times (3 out of 26) in relation to trials and punishments. First, in surah Al-Baqarah: 155, the word 'fruit' is used once (1 out of 3) in relation to a trial or test and this is supported by the phrase 'And certainly, We shall test you with something of fear, hunger, loss of wealth, lives and fruits'. Second, in surahs Al-A'râf and Saba' the word 'fruit' is magnificently used twice (2 out of 3) in relation to divine punishments and this is supported by the phrases 'And indeed We punished the people of Fir'aun (Pharaoh) with years of drought and shortness of fruits (crops)' [Al-A'râf: 130] and 'and We converted their two gardens into gardens producing bitter bad fruit' [Saba': 16] Another key point, is that, all the previous relations are shown in the same contexts where the word 'fruit' is mentioned in.

Moreover, 2 of the previous verses are Meccan where much talk about the stories of the former prophets and their people that Meccan people had to, particularly, take lessons from these stories so that they could take heed and for all people in general and this is confirmed by the phrase 'that they might remember (take heed)' [Al-A'râf: 130] In addition, 1 verse is Medinan where the speech is directed to the believers of Medina and for all people in general and this is clarified in surah Al-Baqarah: 155 when Allah has mentioned the trial (test), He



said, 'but give glad tidings to As-S abir ûn (the patient)' and what type of people are the patient? The answer is in verse 156 in the same surah: 'Who, when afflicted with calamity, say: "Truly! To Allâh we belong and truly, to Him we shall return', and only the believers who truly belong to Allah. To be sure, God described this quality of people in verse 157 in the same surah with 'and it is they who are the guided ones'.

4. Results

After drawing special attention to the word 'fruit' and analysing its connotations in the Holy Quran, this section sheds lights on the results that were achieved in this research. To start with, the major purpose of mentioning the word 'fruit' in the Holy Quran was to show the reward of the people of Paradise and then to show Allah's ability. On the other hand, the minor purpose was to show a trial or a test and was also to show the divine punishments of former peoples. The results of the connotations of the word 'fruit' according to the response and according to the repetition of the word 'fruit' are shown in table 1.

Table 1.

Response 1	l (14 words)) Response 2 (26 words)				
Matter 1	Matter 2	Matter 1	Matter 2	Matter 3	Matter 4	Matter 5
9 of 14	5 of 14	9 of 26	5 of 26	5 of 26	4 of 26	3 of 26
64 %	36 %	35 %	19 %	19 %	15 %	12 %

Second, sometimes, in extracting the connotations of the word 'fruit' it was necessary to refer to previous contexts and it was enough to extract and understand the connotations within the same contexts at other times. The number of contexts that has been referred to and their percentages are outlined in table 2.

Table 2.

Response 1 (14 words)		Response 2 (26 words)				
Matter 1	Matter 2	Matter 1	Matter 2	Matter 3	Matter 4	Matter 5
9 of 9	5 of 5	2 of 9	4 of 5	Х	3 of 4	Х
100 %	100 %	22 %	80 %	Х	75 %	Х
14 out of 14		9 out of 26				
100 %		35 %				



All matters of the responses: 23 out of 40	57.5%

Third, even the word 'fruit' has more than a meaning, sometimes, the purposes of using the word with its different meanings are the same and this clarifies the eloquence language that is used in the Holy Quran. Two matters were similar in the two responses and these were: the reward of the people of Paradise and Allah's ability and provision. The similar matters that include the word 'fruit' in both responses are shown in table 3 with percentages.

Table 3.

	The reward of the people of Paradise	Allah's ability and provision	
Response 1	9	5	
Response 2	4	14	
Total	13 out of 40	19 out of 40	32 out of 40
Percentage	32.5 %	47.5 %	80 %

Fourth, the place of revelation and the addressee had undeniable roles in extracting the surrounding connotations of the word 'fruit'. The word 'fruit is mentioned in the Holy Quran in 25 Meccan and Medinan surahs. The Meccan surahs were the major ones showing the importance of the place and the addressee in adding extra information to the target term. The results of mentioning the word 'fruit' according to the place of revelation are outlined in table 4.

Table 4.

Number of Surahs	Meccan surahs	Medinan surahs	Number of verses	Meccan verses	Medinan verses
25	20	5	40	28	12
	80 %	20 %		70 %	30 %

Finally, the word 'fruit' was used in 25 surahs in the Holy Quran and this attribution is considered a fifth of the Holy Quran. This showed that the word 'fruit' is an important item in the Holy Quran. This attribution is shown in table 5.

Table 5.

Number of surahs of the Holy Quran	Number of surahs that includes the word 'fruit'	Percentage
Meccan Surahs: 86	20	17.5 %
Medinan Surah: 28	5	4.3 %
Total: 114	25	22 %



5. Conclusion

The analytical method with statics has been adopted in this research for the purpose of studying the connotations of the word 'fruit' in the Holy Quran. The study has proved that the word 'fruit' has eloquently been used for important different purposes and connotations that have amazingly added strength and aesthetics to the repeated term (fruit) in the Holy Quran. The purposes of using the word 'fruit' have magnificently been varied by Allah according to the place, the person who the speech is directed to and the context of the verse and all of these together display the inimitability in the use of the repeated item in the Holy Quran and also, of course, has increased the understanding of the Quranic term and consequently the understanding of the context.

Accordingly, the ponder of the holy Quran has increased when taking the variety of using the repeated Quranic term into account. This is what Allah has urged Quran's readers in many verses to ponder the Holy Quran while reading it.

Recommendations

In spite of the fact that this research focused on the connotations of the word 'fruit' in the Holy Quran, it was not possible to take the types of fruit that were mentioned in the Holy Quran, for example, figs and pomegranates under study. According to this, the researcher recommends that studying these types may enrich the fields of knowledge with something new about the eloquence of the Holy Quran and the secrets of fruit.

Acknowledgements

The researcher would like to show his great gratitude and appreciation to Mr. Shahir Al-Othman and Mr. Bakr Fawadhleh for their efforts and comments on the materials of the current research.

References

Abu-Huraira. (n.d.). *Sunnah.com:*. Retrieved January 12, 2017, from https://sunnah.com/muslim/53#

AlBzour, S. M. (2016). The Grace of Cattle in the Noble Quran: An Analytical Study. *International Journal of Linguistics*, 8(4), 101-116. http://dx.doi.org/10.5296/ijl.v8i4.9779.

Ali, M. M. (2010). *English Translation of The Holy Quran*. (Z. Aziz, Ed.) 15 Stanley Avenue, Wembley, U.K. HA0 4JQ, U.K: Ahmadiyya Anjuman Lahore Publications.

Altenberg, E. P., & Vago, R. M. (2010). *English grammar : understanding the basics*. Cambridge ; New York : Cambridge University Press, 2010.

Bzour, A., & Mohammad, S. (2015). Connotations of the Straightforward Colours in the Holy Quran. *American Journal of Humanities and Social Sciences*, *3*(4), 90-102. http://dx.doi.org/10.11634/232907811503719.

Chambers. (n.d.). Retrieved December 30, 2016, from http://chambers.co.uk/search/?query=fruit&title=21st



Hanapi, M. S. (2013). From Jahiliyyah To Islamic Worldview: In A Search Of An Islamic Educational Philosophy. *International Journal of Humanities and Social Science*, *3*(2), [Special Issue – January 2013]), 213-121.

Haroun, N. A. (2005). Teach Yourself Islam (Second ed.). Eygpt: Dar An-Nashr Liljami'at.

Islam.Ru in English. (2014, February 20). Retrieved November 23, 2016, from http://islam.ru/en/content/story/fruits-and-vegetables-quran

Martin, F. W., Campbell, C. W., & Ruberte, R. M. (Issued April 1987). *Perennial edible fruits of the tropics: An inventory (Agriculture handbook No. 642).* Supt. of Docs., U.S. G.P.O. [distributor].

Nafziger, G. F., & Walton, M. W. (2003). *ISLAM AT WAR: A History*. Westport, London: Praeger Publishers.

Nelson, G. (2002). English: An Essential Grammar. Routledge.

Oxford Wordpower. (2002). Oxford University Press.

QURAN A Reformist Translation. (2007). (E. Yuksel, L. S. al-Shaiban, & M. Schulte-Nafeh, Trans.) United States of America: Brainbow Press.

SADIQ, E. (2014). Islam and Human Life: Beyond Ancient Needs. *The Journal of Business Inquiry*, 13(1 (Special Issue)), 12-26.

The Holy Qur'an: King Fahd Complex For The Printing Of The Holy Qur'an. (n.d.). Retrieved November 22, 2016, from http://qurancomplex.gov.sa/default.asp?l=eng

Tzortzis, H. A. (2008, September 17). *ISLAM21C*. Retrieved November 27, 2016, from http://www.islam21c.com/texts/203-an-introduction-to-the-literary-a-linguistic-excellence-of-the-quran/

Appendix

Table 1. Shows the verses that include the word 'fruit'.

No	Surah	Surah No	Place of revelation	Verse	Repetition of the
				No	word 'fruit'
1	Al-Baqarah	2	Medinan	22	1
	Al-Baqarah	2		25	1
	Al-Baqarah	2		126	1
	Al-Baqarah	2		155	1
	Al-Baqarah	2		266	1
2	Al-An'am	6	Meccan	99	1
	Al-An'am	6		141	1
3	Al-A'raf	7	Meccan	57	1
	Al-A'raf	7		130	1
4	Ar-Ra'd	13	Medinan	3	1



5	Ibr âh în	14	Meccan	25	1
	Ibr âh în	14		32	1
	Ibr âh în	14		37	1
6	An-Nahl	16	Meccan	11	1
	An-Nahl	16		69	1
7	Al-Kahf	18	Meccan	34	1
	Al-Kahf	18		42	1
8	Al-Mu'minun	23	Meccan	19	1
9	Al-Qasas	28	Meccan	57	1
10	Saba'	34	Meccan	16	1
11	Fatir	35	Meccan	27	1
12	Ya-Sin	36	Meccan	35	1
	Ya-Sin	36		57	1
13	As-S âff ât	37	Meccan	42	1
14	S âd	38	Meccan	51	1
15	Fussilat	41	Meccan	47	1
16	Az-Zukhruf	43	Meccan	73	1
17	Ad-Dukh ân	44	Meccan	55	1
18	Muhammad	47	Medinan	15	1
19	At-Tûr	52	Meccan	22	1
20	Ar-Rahm ân	55	Medinan	11	1
	Ar-Rahm ân	55		52	1
	Ar-Rahm ân	55		54	1
	Ar-Rahm ân	55		68	1
21	Al-Wâqi'ah	56	Meccan	20	1
	Al-Wâqi'ah	56		32	1
22	Al-H âqqah	69	Meccan	23	1
23	Al-Ins ân	76	Medinan	14	1
24	Al-Mursal ât	77	Meccan	42	1
25	'Abasa	80	Meccan	31	1

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/)