



BOTANY IN *RASĀ'IL IKHWĀN AL-ŞAFĀ'*'s EPISTLE
21: AN ENGLISH TRANSLATION AND ANALYSIS
IN LIGHT OF MODERN BOTANY.

BY

WAN MUNIRA BINTI WAN SULONG

A dissertation submitted in partial fulfilment of the
requirements for the Degree of Master of Islamic Science

International Institute of Islamic Thought and
Civilization

International Islamic University

Malaysia

NOVEMBER 2011

ABSTRACT

This study is about botany by the Ikhwān al-Ṣafā', a prominent name in the history of Islamic philosophy and science during the 10th century A.D. in Basra. The purpose of this study was to translate the 21st Epistle of the *Rasā'il Ikhwān al-Ṣafā'* on the types of plants, from Arabic to English. The text was then analyzed in light of modern botany to find out the similarities and discrepancies between botany in Islamic civilization and the contemporary world. The comparison was made in accordance to the themes chosen by the Ikhwān al-Ṣafā' in the particular epistle. The findings revealed that the Ikhwān al-Ṣafā' wrote about a variety of themes in botany, these include morphology, physiology, reproduction, nourishment and seasonal and environmental aspects in agriculture. The writing was a detailed account in plant morphology in which the Ikhwān described and elaborated the shapes, colours, tastes and scents (odours) of plants. In plant physiology, the facts given were different from modern botany; it showed the classical view of plant growth which they believed were dependent on the seven active forces that reside in plants. While in plants nourishment the Ikhwān already stressed the importance of water to plant growth, sharing a common view with modern botany that eighty to ninety percent of plants are water. Their views on the origin of species, which was wrongly oversimplified by contemporary scholars as pro-Darwinism, were clarified here. The Ikhwān's stance is obviously against Darwinism; they strongly believed that the origin of species is fixed and distinctive from the beginning of creation. Each kind of plant and animal species is beautifully and distinctively designed by Allah in a unique creation and never will a species come from a different species, unless by the ultimate will and wish of Allah SWT.

ملخص البحث

هذه الدراسة تدور حول علم النبات لجماعة إخوان الصفاء، وهي علم بارز في تاريخ الفلسفة والعلوم خلال القرن العاشر الميلادي في البصرة. وتهدف الدراسة إلى ترجمة الرسالة الحادية والعشرين من رسائل إخوان الصفاء التي تتناول أنواع النباتات من العربية إلى الإنجليزية. ثم تقوم الدراسة بتحليل النص في ضوء علم النبات الحديث لمعرفة أوجه التشابه والتباين بين علم النبات في الحضارة الإسلامية وعلم النبات المعاصر. وتم إجراء المقارنة وفقاً للمواضيع التي اختارها إخوان الصفاء في هذه الرسالة الخاصة. ودلت النتائج على أن إخوان الصفاء قد كتبوا في مواضيع متنوعة في علم النبات تشمل مورفولوجيا النباتات، وعلم وظائف أعضاء النباتات، وتناسل النباتات، والتغذية، والجوانب الموسمية والبيئية في علم الزراعة. وكانت الكتابة سيجلاً مفصلاً في مورفولوجيا النباتات حيث وصف فيها إخوان الصفاء أشكال النباتات وألوانها وطعومها وروائحها. وفي علم وظائف أعضاء النباتات، تختلف المعلومات المعطاة عن علم النبات الحديث إذ تشير إلى وجهة النظر الكلاسيكية في نمو النباتات الذي اعتقد الإخوان أنه يعتمد على القوى السبعة الموجودة في النباتات. أما في تغذية النباتات، فقد شدد الإخوان على أهمية المياه لنمو النبات، وهو الرأي الذي شاركوا فيه علم النبات الحديث على أن ثمانين إلى تسعين في المائة من النباتات تتكون من الماء. كما تقوم الدراسة بتوضيح وجهات نظرهم حول أصول أنواع الأحياء التي أخطأ فيها العلماء المعاصرون حينما وصفوها مؤيدة للداروينية. فموقف إخوان الصفاء يختلف تماماً عن الداروينية حيث يؤمن الإخوان إيماناً راسخاً بأن أصول الأنواع ثابتة ومميزة من بداية الخلق. وكل نوع من أنواع النباتات والحيوانات صممه الله عز وجل تصميمًا جميلاً ومميزاً في خلق فريد، ولن يأتي نوع من نوع آخر مختلف إلا بإرادة الله سبحانه وتعالى ومشيعته الذي يفعل ما يشاء ويختار حيثما وأيضا وكيفما يشاء ويريد.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Master of Islamic Science.

.....
Cemil Akdogan
Supervisor

.....
Hassan El-Nagar
Co-Supervisor

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Master of Islamic Science.

.....
Sayyid Ajmal M. Razak Al-Aidruss
Examiner

This dissertation was submitted to the International Institute of Islamic Thought and Civilization and is accepted as a partial fulfilment of the requirements for the degree of Master of Islamic Science.

.....
Hassan Ahmed Ibrahim
Dean, International Institute of Islamic
Thought and Civilization.

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Wan Munira Binti Wan Sulong

Signature Date

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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**BOTANY IN RASĀ'IL IKHWĀN AL-ŞAFĀ's EPISTLE 21: AN ENGLISH
TRANSLATION AND ANALYSIS IN LIGHT OF MODERN BOTANY**

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ACKNOWLEDGEMENT

Alhamdulillah, praise be to Almighty Allah for His love and blessings that I was able to complete this dissertation.

I would like to thank several people who have helped me during the completion of this study. First of all, my heartiest appreciation goes to Emeritus Prof. Dr. Osman Bakar whom his classes inspired me to write about this topic. However, It is Prof. Dr. Cemil Akdogan that I am most indebted. He graciously agreed to be my supervisor and continuously guided me throughout the process with his kind and sincere support and advice for the improvement of this work. My special thanks also go to Prof. Dr. Hassan Al-Nagar who never fails to spend his time to help and guide me with the Arabic language. My heartfelt gratitude is also due to Prof. Dr. Sayyid Ajmal M. Razak Al-Aidruss for his sincere and unfailingly advice and encouragement since my first day at ISTAC.

I would like to extend my gratitude to my friends at ISTAC; Nooraime, Sakinah, Farahezza, Habibah, Muneerdeen and all others who have been so warm, kind and helpful to me. Needless to say, special thanks go to my parents; Hj. Wan Sulong bin Ngah and Hj. Khadijah binti Salleh and my beloved sister Wan Suhana Wan Sulong whom their endless love and prayers shower me throughout the journey.

Lastly I offer my regards and blessings to all of those who supported me in any respect during the completion of this study. May Allah bless and reward all of them.

TRANSLITERATION

ء	'	خ	Kh	ش	Sh	غ	Gh	ن	N
ب	B	د	D	ص	ṣ	ف	F	ه	H
ت	T	ذ	dh	ض	ḍ	ق	Q	و	W
ث	Th	ر	r	ط	ṭ	ك	K	ي	Y
ج	J	ذ	z	ظ	ẓ	ل	L		
ح	ḥ	س	s	ع	ʿ	م	M		

Short Vowels	
	a
	i
	u

Long Vowels	
ا +	ā
ي +	ī
و +	ū

TABLE OF CONTENTS

Abstract	ii
Abstract in Arabic	iii
Approval Page	iv
Declaration Page	v
Copyright Page	vi
Acknowledgements	vii
Transliteration	viii
INTRODUCTION	1
Significance of the study	3
Objectives of the study	4
Literature review	4
CHAPTER 1: INTRODUCTION TO IKHWĀN AL-ŞAFĀ' AND THEIR WRITING	18
Introduction	18
About the authors	18
Introduction to the Epistles of Brethren of Purity.....	21
The structure and contents of Epistle 21 (on the types of plants)	22
CHAPTER 2: ENGLISH TRANSLATION OF EPISTLE 21 ON THE TYPES OF PLANTS	26
Chapter 1	26
Chapter 2	32
Chapter explaining types of plants according to (their) places.....	37
Chapter on differences in plants due to seasonal variation.....	38
Chapter 5.....	48
CHAPTER 3: ANALYSIS OF THE CONTENTS OF EPISTLE 21 IN LIGHT OF MODERN BOTANY	55
Introduction	55
The Ikhwān's writing style	55
The definition and the features of plants according to the Ikhwān al-Şafā' and modern botany.....	56
Scope of botanical studies.....	58
Morphology of plants	58
Physiology of plants	62
Plant reproduction	64
Plant nourishment	65

Geographic and environmental aspects in botanical science	66
Other scientific concepts in Epistle 21	69
CONCLUSION	72
BIBLIOGRAPHY	76
APPENDICES	79

INTRODUCTION

‘Ilm al-nabāt or botany is an area in Islamic science that has become a subject of interest to many Muslim scholars. The writings on botany can be traced in the Islamic civilization to as early as 143H/765AD.¹ Unlike botany in modern times, its primary aim in early Islamic civilization was to collect names of plants and categorize them under the linguistic study rather than being under natural science.² This was so because of the importance of the Arabic language, as it is a means to understanding Qur’anic revelation and prophetic tradition. Thus, Muslims inclined to studying the names and types of plants as a way to enrich the vocabulary of the language.³ However, over time, the botanical science began to develop further as Muslims started to engage in other angles of studying plants, the healing properties of plants, pharmacology and the utility of plants for human and animals.⁴

Like many other branches of science, botany in Islamic science was also greatly influenced by the Greek heritage in which it reached Muslims through translated works during the time of Khālīd bin Yazīd bin Mu‘āwiyah of the Umayyad Caliphate and during the time of Abī Ja‘far al-Manṣūr and Al-Mutawakkil.⁵ Among others who wrote on botany in Islamic civilization were Abū Hanīfah al-Dīnawārī, Hunayn bin Ishāq, Al-Kindī, Al-Rāzī, Ibn Sinā, Al-Bīrūnī, Ibn al-Baitar, Ibn Bājah

¹ Ali Abdullah Al-Dafa’, *Ishām Ulamā’ al-Arab wa al-Muslimīn fī ‘Ilm al-Nabāt*. (Beirut: Mu‘assasah al-Risālah, 1985), 22

² Ibid., 21

³ Ibid.

⁴ Abdul Salam Muhammad Al-Nuwaihi, *‘Ilm al-Nabāt ‘Inda al-‘Arab*. (Tunis: Dar al-Ma‘arif li al-Ṭaba‘ah wa al-Nasyr, 1994), 16

⁵ Ibid.

and many others including Ikhwān al-Ṣafā'. The latter has been chosen as the subject of this study.

The foremost goal of this work is to explore the science of botany of the Islamic civilization in the 10th and 11th century from the writings of Ikhwān al-Ṣafā'. For this purpose, Epistle 21, on the types of plants of *Rasā'il Ikhwān al-Ṣafā'* (Beirut edition), will be translated from Arabic into English and followed by analysis of the facts on the nature, morphology and utility of plants in light of modern botany. It is interesting to know that Ikhwān al-Ṣafā' have discussed as early as 10th and 11th century certain concepts of the modern botany, such as food chain, idea of evolution⁶ and plant morphology, physiology and reproduction. Thus, there is nothing new in botany which Islam has not mentioned!

Epistle 21 of the Arabic edited version consists of 28 pages on plants, it is divided into five chapters. The first chapter focuses on various shapes of plants and the reason behind its variety. The second chapter discusses the growth and development of plants, the variation of taste, colour and fragrance, as well as some definitions of plants and trees. The third chapter explains types of plants based on their different locations, while chapter four introduces the variation in the types of plants from the aspect of growth time, the structure of leaves and fruits, the reproduction of date-palm and some explanation about the hierarchy of being. The last chapter of the epistle, chapter five, emphasises the basic structure of roots of date-palm, fig tree and grape. Hence, it is clear that in this epistle, albeit a small exposition, the Ikhwān chose a few subjects to be discussed rather than focusing on just one aspect. Indeed, it is just a small piece of work on botany, but it nevertheless shows the

⁶ Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrine: Conceptions of Nature and Methods Used for its Study by the Ikhwān al-Ṣafā', Al-Biruni and Ibn Sina*, (Great Britain: Thames and Hudson, 1974), 72

scope of discussion as well as serves as a representative to other writings of the 10th and 11th century.

SIGNIFICANCE OF THE STUDY

Why is this study significant? To answer this, it is necessary to mention that modern advancement of science and technology nowadays, rooted to the ancient civilizations and Islamic science, is a part of the history of Western science. Western civilization, especially from 14th to 17th centuries depended heavily on the works of Muslims for their scientific development. This is an important historical event often forgotten, even by Muslims themselves. Thus, the position of Muslims in the history of science needs to be highlighted and appreciated by the young generation of Muslims. Therefore, this thesis is an attempt to study the form of science in the Islamic civilization, particularly botany. It is also an attempt to inform the younger generation of the previous mastery of Muslim scholars, they rigorously discovered and achieved beyond their time; their contributions to knowledge are still relevant till the present time.

Besides that, there is no doubt in the Ikhwān's *Rasā'il* authenticity in science. It is qualified enough to be the subject matter of a research since its authority in science is verified by contemporary scholars, especially by the historians and philosophers of science like George Sarton, Philip K.Hitti and Seyyed Hossein Nasr. Meanwhile, it is reliably noted that in the past the *Rasa'il* was read by great scholars like Imam al-Ghazālī, Ibn Sinā, Ibn Al-Haithām and Ibn Taimiyyah.⁷ In addition, al-Ghazzali was said to have been influenced by Ikhwān's writings.⁸

⁷ *An Introduction to Islamic Cosmological Doctrines*, 17

⁸ Philip K. Hitti, *History of the Arabs: From the Earliest Times to the Present*. (London: MacMillan Education Ltd., 1970), 373

If the objectives of this research are achieved, it, hopefully, will enrich the collection of writings of the history of Islamic science which every Muslim will be proud of. More specifically, it will be a precious effort in studying the history of botanical science in Islam. This is due to the fact that the history of 700 years of the glorious era of Islamic civilization, especially in science, witnessed a new form of knowledge being introduced by the Muslim scholars which is obviously different from the previous civilizations, namely, the concept of Oneness of God and the importance of nature as one of the way to know God. This is indeed the best lesson showed by our Muslim scholars who never separated religion from science.

OBJECTIVES OF THE STUDY

The objectives of the study are as follow:

1. To accomplish the translation of Epistle 21 on types of plants from Arabic edition into English.
2. To study the scope and form of science of botany chosen by the Ikhwān al-Şafā' as it will represent the writing of the same discipline in Islamic civilization from 10th to 11th century AD
3. To study the science of botany by the Ikhwān al-Şafā' in light of modern botany, particularly in finding out the themes chosen by the Ikhwān and confirmation of the scientific facts given by them in this epistle.

LITERATURE REVIEW

Currently, *Rasā'il Ikhwān al-Şafā'* has become an interesting subject to the historians and philosophers of science. This is due partly to its encyclopaedic nature, and partly

to the mysterious identity of the members of Ikhwān al-Ṣafā' which remains a question to researchers. As signified by Professor Seyyed Hossien Nasr in *Science and Civilization in Islam*, 'the Ikhwān had shown their proficiency in all branches of science known to antiquity and other ancient civilizations. They wrote in detail about mathematics, geology, mineralogy, botany, zoology, etc., which provided the summary of Islamic sciences during this period'.⁹ Furthermore, the exploration of natural history in Islamic science of the 10th and 11th century AD is incomplete without mentioning Ikhwān al-Ṣafā's *Rasā'il*. This is affirmed by George Sarton in his *Introduction to the History of Science* when he asserts that writings in the *Rasā'il* are regarded as one of the best sources of natural history of that period alongside with 'The Keys of the Sciences' of Muhammad ibn Ahmad al-Khwarizmi and the 'Fihrist' of Ibn Abi Ya'qūb al-Nadim.¹⁰

Among other epistles on natural history, the epistle 22 on animals, especially the ecological fable, is given much attention by the scholars and it has been translated into Urdu and Persian.¹¹ It has also been translated into English by Lenn E. Goodman and Richard McGregor, it was published in March 2010 by the Oxford University Press in association with Institute of Ismaili Studies. In fact, it is a new edition of its previous version which was published in 1978 by Twayne Publication in Boston. Recently, an Arabic critical edition and English annotated translation of Epistles 10 to 14 on logic by Carmela Baffioni has been published by the Oxford University Press in association with Institute of Ismaili Studies, as well as the newest book of the translation of Epistle 5 on music by Owen Wright. Besides that, an annotated

⁹ Seyyed Hossein Nasr, *Science and Civilization in Islam*. (Kuala Lumpur: Dewan Pustaka Fajar, 1984), 111

¹⁰ George Sarton, *Introduction to the History of Science*, (Baltimore: The Williams and Wilkins Company, 1953), vol. 1, 648

¹¹ John Platts, *Ikhwanu-as-Safa' or Brethren of Purity: Translated from the Hindustani of Maulavi Ikram Ali*. (London: WM.H. Allen & Co., 1875), preface.

translation of the epistles 43 to 47 by Eric Van Reijn had been published by Minerva Press, London in 1995. Obviously, the interest on the *Rasā'il* is growing in the West and it is not surprising since there is so much to be offered by the corpus about the history and the legacy of Islamic science in the Muslim civilization.

As previously mentioned, one of the earliest part of the epistles which has been given much attention by the scholars in the East and the West is the ecological fable in epistle 22 entitles '*The case of the animals versus man before the king of the jinn*'. This fable has been translated into English by Lenn E. Goodman in 1978. Previously it is translated into Urdu by Maulavi Ikram Ali which is then rendered into English by John Platts in 1875. The epistles of the Ikhwan al-Safa's including the ecological fable had served as '*the test-book for the first Civil and for the Military Interpreter's Examination, and for the Examination for a Certificate of High Proficiency in Urdu*.'¹² This fable is a hallmark for the proficiency of the Ikhwan in the branch of zoology, sociology, politics, geography and philosophy. In terms of zoology, as signified by Goodman, the Ikhwan's knowledge is more to lore than science. Throughout the story, the readers are presented by the arguments given by the animals that make complaints before the King of the Jinn against men's behaviour who regard themselves as masters whereas the animals are slaves. The humans raise views to prove their superiority over animals which lay in the arguments regarding their fine creation, fine arts, good life and pleasurable existence, prophecy and inspirations, different ranks of people in a society, singleness of forms and eternity of souls. The animals then defended their views as counter-arguments to what have been spoken up by the humans. Even though the animals have presented convincing arguments to show their strength and special features and advantages as God's creatures, the final

¹² John Platts, *Ikhwān-ṣ-Ṣafā; or Brothers of Purity: Translated from the Hindustani of Maulavi Ikrām 'Alī*. (London: WM. H. Allen, 1875), iv

results eventually favoured the human, without justification given by the King of the Jinn regarding his judgment. Interestingly, the Ikhwan's brilliant logical and philosophical thought are vivid, where the arguments from the animals are convincing enough to influence the readers to understand their specialties and distinctive functions played by them on earth. The animals in this story come from eight groups of animals, namely beasts of prey, birds of prey, birds, swarming creatures, crawling creatures, water animals, beasts and cattles. While the spokesman of human come from different races from different part of the world such as Indians, Persians, Byzantines, Iraqis, Syrian and Qurasyi. Both parts impressively give their best of their oratory and eloquence proofs to win the trial, in a way it shows the Ikhwan's brilliance and sensibilities in writing this fable.

Other epistles which have been translated into English are the epistles 10-14 (on logic) and the epistle 5 (on music) which were published in 2010 and 2011 by the Oxford University Press in association with Institute of Ismaili Studies. In *On Logic: An Arabic critical edition and English translation of Epistles 10-14*¹³ by Carmela Baffioni, the Ikhwan referred to the Porphyry's Isagoge and turn to Aristotle in many of the logical discussion from the *Organon*, *Categories* and *On Interpretation*. The author examines that the Ikhwan being true to most of their reference especially of the Porphyry and showed some discrepancies with Aristotle yet very little. On the other hand, the Ikhwan also try to blend the Greek's logic with Islamic point of view. While in *On Music: An Arabic critical edition and English translation of Epistle 5*¹⁴ by Owen Wright, the Ikhwan made use the reference from Al-Fārabi and Al-Kindi on this issue. The cosmological aspects and numerical symbolism were never far from their

¹³ Carmela Baffioni, *On logic: An Arabic critical edition and English translation of Epistles 10-14*. (Oxford: Oxford University Press in association with the Institute of Ismaili Studies, 2010)

¹⁴ Owen Wright, *On music: An Arabic critical edition and English translation of Epistle 5*. (Oxford: Oxford University Press in association with the Institute of Ismaili Studies, 2011)

discussion, like the four strings of the lute is connected to the inventor sages in matching them with other phenomena grouped in four. Then they wrote about the general classes of struck, plucked and blown musical instrument and the different types of instruments which are idiophones and membranophones, aerophones and chordophones. The Ikhwan singled out the lute as a subject of discussion as the author says ‘since it was the standard tool of theorist for the demonstration of tunings and fretting and the definition of scalar and model structure.’¹⁵ The Ikhwan also write in great detail of rhythm and cycles in Arabic and Persian music.

In the *Muslim Neoplatonists: an introduction to the thought of the Brethren of Purity*¹⁶ by Ian Richard Netton, the study of the Ikhwān could be viewed extensively and deeply in terms of the Greek influence and the sources of religious knowledge as well as the use of literatures by the Ikhwan in the *Rasā'il*. Netton signifies that the Ikhwān dominantly embrace Neoplatonism which is epitomised in the doctrine of hierarchy and emanation that appeared in most part of the corpus. Besides, the influence of Pythagoras, Aristotle and Plato could be found elsewhere throughout the epistles, yet they are rather small and insignificant. The Ikhwān’s knowledge of religious sources on the other hand is vast. They showed their familiarity with a large portion of Christian scripture like the stories linked to the Christ, particularly the story about the bleachers and the life of Christ as depicted in the Gospel.¹⁷ Surprisingly, some of their views are found to be contradicting to the orthodox Islam, such as the story of the crucifixion where they believed that the Christ, rather than elevated by God and substituted by another man, was actually crucified, died and rose from

¹⁵ Owen Wright, 32

¹⁶ I.R. Netton, *Muslim Neoplatonist: An Introduction to the Thoughts of the Brethren of Purity (Ikhwan al-Safa’)*, (Edinburgh: Edinburgh University Press, 1991)

¹⁷ Ibid., 52.

dead.¹⁸ While, their knowledge on Judaism is much less compared to that of Christianity. The use of literature is also viewed by Netton. Undeniably, the Ikhwān make use of Quranic verses to form their arguments and explanation on things. But according to Netton *'it is as smoke-screen to their internal Neoplatonism.'* Some said that it is one of their ways to cloak their inclination towards Christianity.¹⁹ Besides that, their interpretation of things go beyond superficial and literal interpretation of Quran, like the use of Hermetic Kitab al-Uṣṭūṭās to explain the perfect creation of Adam in relation to the best position of stars.²⁰ In terms of their reference to the prophethood, the Ikhwan turned to both Quranic and non-Quranic sources such as Hermetic Kitab al-Uṣṭūṭās and Genesis for Prophet Adam, Judaic sources on Prophet Abraham and Torah on Prophet David. In view of Quranic sources, Netton said it is not more than as *'to cloak the wilder Neoplatonic heresies from hostile eyes.'* Besides that, the Ikhwan also referred to the Indian literature other than of Persian, Indian, Buddhist, Zoroastrian and Manichaean. The King Stories and Animal Stories in the Rasail is greatly influenced by the Indian literature. While the connection of the Ikhwān to the Ismailis school, Netton viewed that the influence of the thought is not an indigenous factors in the doctrine of the Ikhwan. He believed that the Ikhwān were not Ismailist since they were not against any of the Prophet's friends like Abu Bakat, Umar and Uthman. The research made by Netton on the Ikhwan al-Safa can present the readers to the general introduction to understand the history of ideas among the Ikhwan's members and their purpose to popularize the Neoplatonism thought in an Islamic way. They also intend to show their sympathies towards other religion

¹⁸ Ibid., 60

¹⁹ Ibid., 79

²⁰ Ibid., 81

especially that of Christianity. Their views were certainly biased against the orthodox Islam at that time.

In the *An introduction to Islamic cosmological doctrines: Conceptions of nature and methods used for its study by the Ikhwan al-Şafā', Al-Biruni and Ibn Sinā*²¹ by Seyyed Hossein Nasr, the idea and views of cosmology of the Ikhwān have been discussed in side with two other prominent names in Islamic civilization namely Al-Biruni and Ibn Sina. According to the Ikhwan, the 'cosmos' is referred as 'a city', 'an animal' or 'a human', where each part of it is unified as one. In discussing the philosophical view of the universe, the Ikhwān used symbolism in discerning the wisdom of the maker. Among the symbols, numbers play the most significant part in explaining and symbolizing the nature. It features the influence of Pythagoras where numbers served as the cause of all things and the key to the understanding of the harmony spread through the universe. For example, the Ikhwān divided nature into four group namely unities, dozens, hundreds and thousands and relate this to the fourfold divisions on many aspects of nature such as four physical nature (hot, cold, dry, moist), the four elements (fire, air, water, earth), the four humours (blood, phlegms, yellow bile, black bile), the four seasons, the four cardinal directions, four winds and four products (metal, plants, animals and man). While in the hierarchy of beings of which the universe is consists of, the Ikhwān said there are nine states of beings compared by the Ikhwān as a generation of numbers from number One. The nine states of beings are Creator, Intellect, Soul, Matter, Nature, body, sphere, elements and beings of this world namely metal, plant, animal and man. The author also discusses the individual cosmological sciences of the Ikhwan, namely the

²¹ Seyyed Hossein Nasr, *An introduction to Islamic cosmological doctrine: Conceptions of nature and methods used for its study by the Ikhwan al-Safa', Al-Biruni and Ibn Sina*, (Great Britain: Thames and Hudson, 1974).

astronomy, astrology, meteorology, geology, geography and the three kingdoms of terrestrial components which are minerals, plants and animals. All of the branches of sciences showed the influences of profound Greek idea and science especially of Neoplatonism and the view of numbers as the most important way of symbolism.

While in a book by Muhammad Farid Hijab entitled *Al-falsafah al-siasiyyah 'inda Ikhwān al-Ṣafā*, the philosophy of politics by the Ikhwan has been discussed in depth where it discusses the political ambience of which the Ikhwan lived, the political hierarchy in the organization and the doctrines and principles of politics by the Ikhwān. Looking into the political ambience of the Ikhwan's time, the author is in view that they existed prior to the 4th century of Hijrah – a view that contradicts many other writers who agree that this organisation had actively produced the epistles at the mentioned time. The author backed the argument by saying that the beginning of the peak of Abbasid caliphate started before the 4th century of Hijrah and that the spread of Greek philosophy reached its zenith at the end of 2nd Hijrah and the early of 3rd Hijrah. The political background and the knowledge-based society in Basra at the time became one of the reasons for the Ikhwān to establish their organisation in secrecy with their own agenda which forced them to hide their identity from the caliph. Moreover, in terms of their affiliation to the Shi'ites, the author has proven that the Ikhwān were not belong to the Imamiyyah and Zaidiyyah but from Ismailis; a view backed by many other scholars on this issue. Then, the philosophy of politics is deeply discussed especially on the political society. They also established the idea of *al-madīnah al-fāḍilah* or *al-mujtama' al-mīthāī*, which means the city of virtue or the exemplary society. This society emphasises the important of *al-imām* and the other hierarchy of men which consists of apostles, prophets, philosophers, sages and others. This city of virtue is built on justice and virtue. They strongly believed on the

importance of religion and philosophy in the realisation of the city of virtue. According to the Ikhwān, three perfect societies are comprised of *al-madīnah* (city), *al-ummah* (people) and *al-daulah al-imāmiyyah* (imamate state). While the ultimate purpose of the city of virtue is to reach the goodness of the city (*ṣolāh al-bilād*). They insist that the hindrances for *al-madīnah al-faḍīlah* are the bad deeds of the people, the decay of their thoughts, the corruption of their morals and their ignorance and illiteracy. While the requirements for *al-madīnah al-faḍīlah* are sages, methods, purity, high position and faith to God. These requirements show the influence of Platonism with some differences in execution.

Besides that, in another book entitled *Al-wujud 'inda Ikhwān al-Ṣafā' wa Khillān al-Wafā'*²² by Wajih Ahmad Abdullah the existence according to the Ikhwan has been discussed. According to the *Rasā'il*, God is the source of every existence and being in this world, where the existence of God is proved through the evidence of souls, and the existence physical and mental abilities. The Ikhwan emphasized certain attributes of God which could be found throughout Rasail such as *al-quwwah* (power), *al-iradah* (desire), *al-kamal* (perfection) and *al-tanzih al-mutlaq li al-bari* (the true chastity of the Creator). According to the Ikhwān, there are two types of existence, namely the universal and the partial; and two division of existence which are spiritual parts, namely soul, intellect and prime matter and physical part namely heavenly bodies, the four elements (soil, water, wind and fire) and the three beings namely mineral, plants and animals. All of these existences originated from God, with the influence of Pythagorean numerical symbolism where the Ikhwān said that the One is the origin of existence. Besides that, the Ikhwān propagate that the man exists as

²² Wajih Ahmad Abdullah, *Al-wujud 'inda Ikhwān al-Ṣafā' wa Khillān al-Wafā'* (Alexander: Dar al-Ma'rifah al-Jami'iyyah, 1989).

microcosm and macrocosm. In discussing the human soul, it is the emanation of the universal soul, where the universal soul exists in every component of beings, even the partial soul is also originated from it. The human soul is equipped with the *al-quwwah al-zāhirah* and *bāṭinah* (the outer and inner power) where the strongest faculty is the thinking faculties that differentiate a man from animals, and makes him know between true and false and reach the knowledge and wisdom which served as the heart of life. In discussing about the human soul, there are three position of souls, namely the human soul and below it are seven other soul and above it are seven others, make them fifteen altogether. Two are known below are the animals soul and plant soul and the two above is the prophetic soul and angelic soul. From the plants' soul we obtained the eating desire, and from the animals' is movement and perception. While the human soul is ascribed to the thinking ability and the moral values and virtues, human soul can be degraded to the lowest soul or can be elevated to the highest level according to their knowledge and wisdom. The author stresses that the Ikhwān make use of a profound immense sources of Platonism idea on soul and its connection with human body such as the idea that the body is the follower of soul²³ and body as a prison for soul.²⁴

Another aspect of discussion from the *Rasā'il* which has been talked about by the previous scholar is the nature and character of man according to the Ikhwān al-Ṣafā'. In the book entitled *Al-akhlāq 'inda Ikhwān al-Ṣafā'*,²⁵ written by Ghassan 'Ala' al-Din, the nature of man as an individual and collective society has been discussed. The Ikhwan stated that there is no clear connection between soul and body

²³ *Al-wujud 'inda Ikhwān al-Ṣafā' wa Khillān al-Wafā'*, 241

²⁴ *Ibid.*, 243

²⁵ Ghassan 'Ala' al-Din, *Al-akhlāq 'inda Ikhwān al-Ṣafā' wa Khillān al-Wafā'*. (Damascus: Dar al-Ḥiwar, 2003).

in shaping man's nature.²⁶ However man's nature has a relation with the attributes of plants and animal through the nutrition where the animals eat the plants and the man eats the animals. Besides that there is also relation between the man's nature with geography, where the differences in climates and lands influence the physical and attributes of man. This is an old idea which so much emphasized by the Ikhwān. Besides that, the Ikhwān indicate that astrology also takes part in moulding the nature of man. In discussing the nature and body, the Ikhwān is of the opinion that a man is created from four elements; earth, water, wind and fire, where these four elements have their own influence to the man's attribute like the earth is related to determination, water to tenderness, hotness to sharpness (perception) and coldness to patience and endurance.

However, until now, no research has been done to study in great detail the botany of Ikhwān al-Ṣafā', especially in examining the central themes of botany of the Ikhwān. Even when the botany is discussed, it is on the other point of view such as that of Seyyed Hossein Nasr in his *An introduction to Islamic cosmological doctrines*. Professor Nasr chose Ikhwān al-Ṣafā' as one of the three Muslim scientists whose ideas of cosmology in Islam is studied. In the Ikhwān al-Safā's part, particularly in botany, the Ikhwān explained the position of plants in the hierarchy of being and its useful properties as food for animal which the latter is then consumed by human. The former at the same time benefitted from minerals for its survival. This apparently shows the concept of food chain in biology. Then, the Ikhwān also gave information regarding the nature of plants, especially the creation of plants, which, according to Prof. Nasr, is teleological since '*everything exists for a purpose and the final purpose*

²⁶ Ibid., 52