

COMPILATION OF QURANIC VERSES (JUZ 16 -30) AND HADITHS OF SAHIH MUSLIM RELATED TO VISUAL FUNCTION

SITI AISHAH MD HALIM

DEPARTMENT OF OPTOMETRY AND VISUAL SCIENCE, KULLIYAH OF ALLIED HEALTH SCIENCES, INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA, JLN SULTAN AHMAD SHAH BANDAR INDERA MAHKOTA 25200 KUANTAN, PAHANG, MALAYSIA

NOOR EZAILINA BADARUDIN, PhD (CORRESPONDING AUTHOR)

DEPARTMENT OF OPTOMETRY AND VISUAL SCIENCE, KULLIYAH OF ALLIED HEALTH SCIENCES, INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA, JLN SULTAN AHMAD SHAH BANDAR INDERA MAHKOTA 25200 KUANTAN, PAHANG, MALAYSIA

ezai@iium.edu.my

HASBULLAH MOHAMAD, PhD

KULLIYAH OF ISLAMIC REVEALED KNOWLEDGE AND HUMAN SCIENCES, INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA, JLN SULTAN AHMAD SHAH BANDAR INDERA MAHKOTA 25200 KUANTAN, PAHANG, MALAYSIA

asbul74@iium.edu.my

ABSTRACT

Al Quran and Al Hadith are not book of sciences, but books of Divine guidance which can be referred to inspire in understanding things including the scientific nature of creation. This study was performed to compile the Quranic verses (Juz 16-30) and Hadith of Sahih Muslim which are related to visual function with scientifically proven facts. Five keywords were chosen based on the process of seeing which were "light", "eye/eyes" and "sight" and the synonyms of sight which were "vision" and "see". Search engine, Search Truth was used to help gather the verses and hadiths comprising the keywords. Cross reference with the original copy of the Holy Quran and book of Sahih Muslim was done to ensure the authenticity of the Quranic verses and hadiths. Existing scientific facts regarding the revelation were then gathered to support the findings. There were 377 Quranic verses (Juz 16-30) containing the words "light", "eye/eyes" and "sight" (and its synonyms). Out of this, only 6 Quranic verses have relation to visual function and have been scientifically proven. For hadith of Sahih Muslim, there were 1285 hadiths containing the words "light", "eye/eyes" and "sight" (and its synonyms). Out of 1285 hadiths only 8 hadiths of Sahih Muslim found to have relation to visual function and has scientifically proven facts.

KEYWORDS: Al Quran, Al Hadith, visual function, eyes, light, see, sight and vision.

INTRODUCTION

Islam is a religion that encourages their believers to seek knowledge at all times. Under this motivation, great numbers of Islamic scholars are born and are well known by both the east and western world up to this day. Many of their works in the fields of mathematics, astronomy, chemistry, medicine and architecture have been documented using Al Quran and Hadith as main references. However, referring specifically to the field of study in optometry there is still a lacking in terms of references that can be used by Islamic optometrist practitioner that are based on Al Quran and Hadith.

Thus, this study aims to compile all the Quranic verses and Hadiths related to visual function by referring to the words "light", "eye/s" and "sight (and its synonyms)", which can serve as a reference for all Muslim optometrists in relating science with the revelation.

Most Islamic scholars define al Quran as "Allah's speech revealed to His Prophet Muhammad (SAW); its wording is miraculous in nature; to recite it as an act of worship; it is that which is written in Al-Masaahif (written copies of the Quran), and is related in Mutawaatir (narrated by large number of narrators) form" (Ahmad, 2006). Al Quran is guaranteed to be safe from any sorts of alteration until the Day of Judgment, "And recite what has been revealed to you of the book of your lord there is none who can alter His words and you shall not find any refuge besides Him" (Al Kahf 18:27). Thus the authenticity of the Quran is everlasting and permanent.

Hadith is defined as "what was transmitted on the authority of the Prophet, his deeds, sayings, tacit approval or description of his "sifaat" (features) meaning his physical appearances (Azami, 1978). Hadith in general gives more explanation and details of the guidance that is given in the Quran which should be applied to certain condition as compared to the way that is being recorded in the Quran. Following the death of Prophet Muhammad, the Islamic scholars work hard to preserve the teaching of Prophet Muhammad by memorizing and compiling his act and deeds (Azami, 1978).

There are six versions of Hadith that are used as references which are Sahih Bukhari, Sahih Muslim, Sahih Abu Dawood, Sahih At-Tirmidhi, Sahih An-Nasaai and Sunan Ibn Majah (Imam Abdul Hussain Muslim Ibn al Hajjaj, 2007). Out of these six, two of the versions which are Sahih Bukhari and Sahih Muslim are more popular in Islamic world and claimed to be more authentic (Crowe, 2011). Thus, hadith of Sahih Muslim was chosen the best to be used in this study.

METHOD AND MATERIAL

Study Design

The design of the study was a descriptive and a qualitative one, in which text documents were analyzed (Al Quran and Hadith of Sahih Muslim) and sorted into categorical based on the keywords chosen.

Materials

The apparatus used in this study were:

- a. The Holy Quran Arabic to English translation by Yusuf Ali
- b. English translation of Sahih Muslim (Volume 1-7)
- c. Search engine: Search Truth available from <http://www.searchtruth.com/>

Procedure

Light is the stimulus used to perceive objects seen by the eyes that result in eyesight, thus the keywords chosen were based on the process of seeing which were "light", "eye/eyes" and "sight". In the Dictionary of synonyms by Merriam -Webster, the synonyms of "sight" are "vision" and "see". Based on this, keywords were chosen which were "light", "eye/eyes", "sight", "vision" and "see".

The search engine, Search Truth was used as a tool to help with the study. The keyword chosen was typed in the search box and exact phrase option was chosen. List of hits containing the verses and hadiths with the keyword were then listed by the websites.

In this study only Juz 16-30 were used, thus only verses contained in the Juz 16-30 were chosen with the partner of mine looking at Juz 1-15. These consist of 96 surahs starting from Surah Al Kahfi

verse 75 till Surah AnNas verse 6. From the listed verses and hadiths from the website, cross references were done with the original copy of Al Quran and the Book of Hadith of Sahih Muslim to ensure the authenticity of the verses and hadiths. Scientifically proven facts related to visual function were gathered to support the findings from the revelations.

RESULTS

Out of 377 Quranic verses which contained the keywords "eye/eyes", "light", "see", "sight" and "vision" only 6 verses are related to visual function with scientifically proven facts.

From the data collected on hadith Muslim, only 8 hadiths out of 1285 hadiths are related to visual function and have been scientifically proven.

DISCUSSION

Quranic verses (Juz 16-30)

1. Light: Morning light

Ad -Dhuha (1)

"By the morning brightness"

Many studies have been conducted regarding the exposure of early morning light towards the bodily function as it is believed to have remarkable benefits. One of them is to regulate sleeping disorder in elderly patient with dementia (Mishima et al., 1994). It is proven that morning bright light therapy is able to increase the level of melatonin secretion at night, which in return able to prolong the night time sleep time and lessen the daytime sleep time (Mishima et al., 1994). Other than that, exposure to bright light is proven to elevate the hormone cortisol in young man (Leprout, 2001). The lack of cortisol level in the body is associated with the lack of alertness during sleep deprivation (Leprout, 2001). Thus, it is believed that exposure to morning light is beneficial to promote the stimulation of the endocrine system.

2. See: Color Perception

Az -Zumar (21)

"Do you not see that Allah sends down rain from the sky and makes it flow as springs [and rivers] in the earth; then He produces thereby crops of varying colors; then they dry and you see them turned yellow; then He makes them [scattered] debris. Indeed in that is a reminder for those of understanding."

As an example, the verse above can be related to colour perception. Colour is a wavelength dependent perception (Schwart, 2004). Normal human with ability to distinguish one color from another have cones photoreceptor in the retina which is able to detect three different wavelengths in three parts of visible spectrum (Rigden, 1994). This theory is called the trichromatic theory which is proposed by Thomas Young and becomes the basis of modern colour vision science (Schwart, 2004).

3. Sight: Development of the Eyes

Al Insan (2)

In the above verse, 'hearing' is mentioned before 'sight' which may be related to the development of organs based on the sequences. Development of ocular structure happens during the third week of embryonic development. In which the germ layer ectoderm, mesoderm and endoderm form the embryonic plate (O'rahilly, 1975). Out of these germ layers, only ectoderm and mesoderm take part in developing ocular structures.

4. Eyes: Binocular vision

Al Balad (8)

Saad (63)

Physiologically a normal human being is equipped with two eyes. Both of these eyes are situated side by side on the front head separated by the nasal septum. Each of this eye view different images which is then sent to the brain to be processed. A slight different in terms of size, color, resolution in the object from the two images is then matched in the brain to produce a three dimension image. Through this a picture with depth is seen thus the object around us does not appear flat.

Stereopsis is a binocular cues to depth of perception. It is also associated as one of the contributing factors in determining quality of life (Datta et al., 2008). Reduction in stereo acuity is often associated with functional deficit especially when driving (Owsley et al., 1998; Gresset et al., 1994 & Humphriss, 1987).

5. Eyes: Movement of the Eyes

Al Ahzab (19)

The eye movement is not only directed to the left and right but it involves oscillating movement around its axis.

Hadith of Sahih Muslim

6. Eyes: Benefits of aloe vera

Book 007, Hadith 2742

In this hadith, it is mentioned that the Prophet Muhammad treated one of the pilgrims who was having sore eyes with aloes. The used of aloe vera as a natural healer has been recorded earlier in Islamic world long before research is conducted by scientist. There are around 500 species of aloe, but it is the aloe barbadensis miller (Aloe Vera) that has been widely used for cosmetic and medicinal purposes (Ni et al., 2004). Even though there is no specific type of aloe that is being mentioned in the hadith, it is highly presumed that this type of aloe is used.

The active components found in aloe vera extract such as anthraquinones, flavonoids, phenolic acids, antioxidant, vitamins and enzymes are believed to be the reasons as to how it gains its therapeutic properties (Choi and Chung, 2003; Yoo et al., 2008). It has been proven that aloe vera demonstrates a wound healing properties, anti-inflammatory, ultraviolet protection, anticancer, antioxidant, anti-parasitic and antidiuretic (Sarkar et al., 2005; Yoo et al., 2008).

As the first line of defense, the corneal epithelium is highly susceptible to various harmful elements (Wylegala et al., 2009). As mentioned previously, aloe vera has been proven to have an anti-inflammatory function. As such, many studies have been conducted to see whether aloe vera can be used on the eyes to treat eye diseases. Aloe vera ethanol and ethyl acetate extract at a higher concentration is

found to be nontoxic (Wozniak et al., 2012). A trial study on healing of corneal epithelial lesion conducted by Green and colleagues (1996) shows positive effect as there is no sign of toxicity found after aloe vera gel is applied to the rabbits' eyes. Thus, aloe vera is believed to have potential ability for treatments of inflammation and also other diseases associated with the cornea.

7. Eyes: Tearing

Book 004, Hadith 2008

Book 005, Hadith 2248

The lacrimal gland is located within a shallow concavity within the frontal bone, just under the super lateral orbital rim. The function of the lacrimal gland is to secrete aqueous to tear film on the surface of the eyes. The tear film serves as nourishment, antibacterial and also lubricant for the eyes. Generally the tears secreted from the lacrimal gland are subdivided into three types which are basal tears and reflex tears and emotional tears (Prabha, 2014). A basal tear is a regular form of tears in which secreted to provide lubricant and to nourish the eyes meanwhile reflex tears is secreted when there is present of foreign body, pain or external provocation (Prabha, 2014; Provine, 2011; Schnetlera et al., 2012).

Crying or shedding tears is a natural phenomenon that occur to express someone's emotion (Balsters et al., 2013). It can signify various forms of human emotional states and acts such as crying, sorrow, despair, pain, happiness, outrage, and empathy, as well as yawning, laughing, and sneezing (Provine, 2011). In the hadith above it is clearly understood that the Prophet shed tears due to feeling of empathy towards the dying child. Emotional crying not only acts as indicators or cues to human feeling but it also have many beneficial effects. It is reported that most people experience mood improvement after crying (Frey, Hoffman-Ahern, Johnson, Lykken, & Tuason, 1983; Lombardo, & Mathis, 1983). This result is consistence with finding in a research in which 88% of the participants reported some form of mood improvement post crying (Rottenburg et al., 2008).

8. Sight: Ocular development

Book 33, Hadith 6393

The embryonic development has been a topic of interest for so long. With the advance of more modern technology it allows the process of human development to be documented and gives greater understanding of the topic. Human development is divided into two stages which are the embryonic development stage and the fetal development stage. Embryonic stage occurs from week one until week eight and fetal stage occurs from week nine till birth (O'rahilly, 1975). In the hadith above, it is mentioned that the sense of hearing comes first before the sense of sight. This is true as it has been recorded that the development of ears first starts at the third week of pregnancy (Peck, 1994), followed by the eyes at the forth weeks (O'rahilly, 1975). The tissues for the eyes derived from three main cells which are neural ectoderm, optic neural crest, surface ectoderm and the mesoderm (O'rahilly, 1975). The eye is not fully matured in the womb and the process of development is still occurring even after birth.

9. Eyes: Memory stored from sight

Book 018, Hadith 4288

The eyes are connected to the brain via the optic nerve (Stoler, 1998). What is seen is then processed in the visual cortex and stored in the memory. This somehow may be related to the above hadith. Part of the visual stimuli is stored in the short term memory and meanwhile others a stored in the long term memory. Theory of brain function suggested that synaptic modalities and plasticity form the

basis for short term and long term memory (Malsbury, 1981). According to a research conducted by Lionel and his colleagues in 1970, vast memory for visual cues or pictures is possessed by human beings. This is confirmed as the result shows exceeding recognition performance of more than 90% even in three days' time elapsed between learning the pictures and testing.

10. Eyes: Aging and the eyesight

Book 004, Hadith 1385

Aging does not only make the appearance of a person different such as wrinkling skin but it also taken a toll in the eyesight as described in the above hadith. Aging is commonly known to be associated with many ocular diseases such as age related macular degeneration (ARMD) and also cataract. In the developed countries such as United States, ARMD is the leading cause of irreversible blindness in people with the age 50 and above (Klein et al., 1992). It is highly established that smoking was the main risk factors of developing advanced ARMD followed by uncontrolled hypertension (AERDS 3, 2000). Many researches have been conducted to slow down the progression of ARMD. One of it is with the use of intravitreal bevacizumab (Rich et al., 2006; Falkenstein et al., 2007). This treatment has shown effective in stabilizing visual acuity loss (Fong et al., 2010)

In the above hadith, one of the prophet Muhammad companions went to see a leader of a tribe. In this hadith he described the man as a very old man and has lost his eyesight. However it is not being explained whether the man is blind since he was born or it is due to other circumstances such as aging which in turn causing him to develop ocular disease like AMD.

11. Sight: Eyestrain

Book 006, Hadith 2592

In this hadith it is mentioned how the deprivation of rest and lack of sleep can cause serious damage to the eyes. It is well known that sleep is an important process to restore bodily function (Penzel et al., 2003). Less sleep has been proven to affect the quality of individual life (Jensen et al., 1993). During sleep, more protein or enzymes is being produced to help with the renewal of new tissue. Deprivation of sleep will cause reduction in capabilities of a person to function efficiently which include the ability to react to emergency situation (Oswald, 1980). This is why most industrial workers accident happens at night or very early in the morning (Fox, 1999).

12. Eyes: Anger and changes in the nervous system

Book 001, Hadith 0060

This hadith is related to anger which caused Imran's eyes became red. Anger has been proven to cause changes in the body. Anger causes the stimulation of the endocrine system to release more adrenaline and causing the heart to pump harder than usual. This in return will cause general increment of heart rate and blood pressure (Christie and Friedman, 2004; Ekman et al., 1983; Sinha et al., 1992). Other than that, anger is associated with reduction of cortisol level (Lerner et al., 2007; Roelofs et al., 2005; Roy, 2004) Decrease in cortisol level will cause reduction of alertness in sleep deprivation state (Leproult, 2001).

Study Limitation

As this study does not focus on one verse solely, the depth of each finding for the Quranic verses and hadith might not be extensive and as deep. In addition, this research used only one search engine (Search Truth) which might yield different result when comparing to other search engine.

In future research, it is recommended to perform the study focusing on one Quranic verse or one hadith so that deeper understanding of the revelation can be obtained which then will lead to more understanding on the relation with science.

CONCLUSION

This compilation may able to invite readers to reflect upon the wonders of creations and phenomena mentioned in the Quran and hadiths that lead to the discovery of our modern science. On the other hand, the scientifically proven facts compiled in this compilation may also help readers to get a better understanding of the Quranic verses and hadiths. However, Quran and hadiths still remain as the book and guidance of Islam and not a book of science

REFERENCES

- Age-Related Eye Disease Study Research Group. (2000). Risk factors associated with age-related macular degeneration: a case-control study in the age-related eye disease study: age-related eye disease study report number 3. *Ophthalmology*, 107(12), 2224-2232.
- Ahmad, M. (2006). *The Magnificence of Quran*. Riyadh: Darussalam Publishers.
- Azami, M. M. (1978). *Studies in Hadith Methodology and Literature*. USA: American Trust Publications.
- Ali Y. (2001). *English Translation of Holy Quran*. Amana cooperation.
- Choi, S., & Chung, M. H. (2003, March). A review on the relationship between Aloe Vera components and their biologic effects. In *Seminars in integrative medicine* (Vol. 1, No. 1, pp. 53-62). WB Saunders.
- Christie, I. C., & Friedman, B. H. (2004). Autonomic specificity of discrete emotion and dimensions of affective space: A multivariate approach. *International journal of psychophysiology*, 51(2), 143-153.
- Datta, S., Foss, A. J., Grainge, M. J., Gregson, R. M., Zaman, A., Masud, T., & Harwood, R. H. (2008). The importance of acuity, stereopsis, and contrast sensitivity for health-related quality of life in elderly women with cataracts. *Investigative ophthalmology & visual science*, 49(1), 1-6.
- Ekman, P., Levenson, R. W., & Friesen, W. V. (1983). Autonomic nervous system activity distinguishes among emotions. *Science*, 221(4616), 1208-1210.
- Fong, D. S., Custis, P., Howes, J., & Hsu, J. W. (2010). Intravitreal bevacizumab and ranibizumab for age-related macular degeneration: a multicenter, retrospective study. *Ophthalmology*, 117(2), 298-302.
- Fox, M. R. (1999). The importance of sleep. *Nursing Standard*, 13(24), 44-47.
- Frey, W. H. (1983). Crying behavior in the human adult. *Integrative Psychiatry*.

- Gresset, J. A., & Meyer, F. M. (1994). Risk of accidents among elderly car drivers with visual acuity equal to 6/12 or 6/15 and lack of binocular vision. *Ophthalmic and Physiological Optics*, 14(1), 33-37.
- Humphries, D. (1987). THREE SOUTH AFRICAN STUDIES ON THE RELATION BETWEEN ROAD ACCIDENTS AND DRIVERS 'VISION. *Ophthalmic and Physiological Optics*, 7(1), 73-79.
- Jenson, D. P., & Herr, K. A. (1993). Sleeplessness: advances in clinical nursing research. *Nursing Clinics of North America*, 26, 385-405.
- Jenson, D. P., & Herr, K. A. (1993). Sleeplessness: advances in clinical nursing research. *Nursing Clinics of North America*, 26, 385-405.
- Leproult, R., Colecchia, E. F., L Hermite-Baleriaux, M & Cauter, E. V. (2001). Transition from Dim to Bright Light in the Morning Induces an Immediate Elevation of Cortisol Levels. *Journal of Clinical Endocrinology & Metabolism*, 86(1), 151-157.
- Lombardo, W. K., Cretser, G. A., Lombardo, B., & Mathis, S. L. (1983). For cryin'out loud – there is a sex difference. *Sex Roles*, 9(9), 987-995.
- Merriam-Webster, Inc. (1984). Merriam-Webster Dictionary of Synonyms. (1st ed.). Springfield, Massachusetts, USA.
- Mishima, K., Okawa, M., Hishikawa, Y., Hozumi, S., Hori, H., & Takahashi, K. (1994). Morning bright light therapy for sleep and behavior disorders in elderly patients with dementia. *Acta Psychiatrica Scandinavica*, 89(1), 1-7.
- Muslim ibnal-Hajjāj al-Qushayrī, Za'ī, A., Khattab, N., Khattab, H., & Abū Khalīl. (2007). *Ṣaḥīḥ Muslim*. Riyadh: Darussalam.
- Ni, Y., Turner, D., Yates, K. M., & Tizard, I. (2004). Isolation and characterization of structural components of Aloe vera L. leaf pulp. *International Immunopharmacology*, 4(14), 1745-1755.
- O'Rahilly, R. (1975). The prenatal development of the human eye. *Experimental eye research*, 21(2), 93-112.
- O'Rahilly, R. (1975). The prenatal development of the human eye. *Experimental eye research*, 21(2), 93-112.
- Oswald I (1980) *Sleep*. London, Penguin Books.
- Owsley, C., Ball, K., McGwin Jr, G., Sloane, M. E., Roenker, D. L., White, M. F., & Overley, E. T. (1998). Visual processing impairment and risk of motor vehicle crash among older adults. *Jama*, 279(14), 1083-1088.
- Ozsoy, N., Candoken, E., & Akev, N. (2009). Implications for degenerative disorders: Antioxidative activity, total phenols, flavonoids, ascorbic acid, β-carotene and β-tocopherol in Aloe vera. *Oxidative medicine and cellular longevity*, 2(2), 99-106.
- Peck, J. E. (1994). Development of Hearing. Part II: Embryology. *JOURNAL-AMERICAN ACADEMY OF AUDIOLOGY*, 5, 359-359.
- Penzel, T., Kantelhardt, J. W., Chung-Chang, L., Voigt, K., & Vogelmeier, C. (2003). Dynamics of heart rate and sleep stages in normals and patients with sleep apnea. *Neuropsychopharmacology*, 28(S1), S48.

- Penzel, T., Kantelhardt, J. W., Chung-Chang, L., Voigt, K., & Vogelmeier, C. (2003). Dynamics of heart rate and sleep stages in normals and patients with sleep apnea. *Neuropsychopharmacology*, 28(S1), S48.
- Prabha, J. L. (2014). Tear secretion – a short review. *Journal of Pharmaceutical Sciences and Balsters, M. J., Krahmer, E. J., Swerts, M. G., & Vingerhoets, A. J. (2013). Emotional tears facilitate the recognition of sadness and the perceived need for social support. Evolutionary Psychology*, 11(1), 147470491301100114. *Research*, 6(3), 155-157.
- Provine, R. R. (2011). Emotional tears and NGF: a biographical appreciation and research beginning. *Archives Italiennes de Biologie*, 149(2), 269-274.
- Rigden, C. (1994). 'The Eye of the Beholder'-Designing for Colour-Blind Users. *British Telecommunications Engineering*, 17, 291-295.
- Rottenberg, J., Bylsma, L. M., Wolvin, V., & Vingerhoets, A. J. (2008). Tears of sorrow, tears of joy: An individual differences approach to crying in Dutch females. *Personality and Individual Differences*, 45(5), 367-372.
- Roelofs, K., Elzinga, B. M., & Rotteveel, M. (2005). The effects of stress-induced cortisol responses on approach-avoidance behavior. *Psychoneuroendocrinology*, 30(7), 665-677.
- Sarkar, D., Dutta, A., Das, M., Sarkar, K., Mandal, C., & Chatterjee, M. (2005). Effect of Aloe vera on nitric oxide production by macrophages during inflammation. *Indian journal of pharmacology*, 37(6), 371.
- Schnetler, R., Gillan, W. D. H., & Koorsen, G. (2012). Immunological and antimicrobial molecules in human tears: a review and preliminary report. *African Vision and Eye Health*, 71(3), 123-132.
- Schwartz, S. (2004). *Visual perception: A clinical orientation*. McGraw Hill Professional.
- Standing, L., Conezio, J., & Haber, R. N. (1970). Perception and memory for pictures: Single-trial learning of 2500 visual stimuli. *Psychonomic Science*, 19(2), 73-74.
- Stoler, D. R. (1998). *Coping with mild traumatic brain injury*. Penguin.
- Sinha, R., Lovallo, W. R., & Parsons, O. A. (1992). Cardiovascular differentiation of emotions. *Psychosomatic Medicine*, 54(4), 422-435.
- Von Der Malsburg, C. (1994). The correlation theory of brain function. In *Models of neural networks* (pp. 95-119). Springer New York.
- Woźniak, A., & Paduch, R. (2012). Aloe vera extract activity on human corneal cells. *Pharmaceutical biology*, 50(2), 147-154.
- Wylegala, E., Dobrowolski, D., Nowińska, A., & Tarnawska, D. (2009). Anterior segment optical coherence tomography in eye injuries. *Graefe's Archive for Clinical and Experimental Ophthalmology*, 247(4), 451-455.
- Yoo, E. A., Kim, S. D., Lee, W. M., Park, H. J., Kim, S. K., Cho, J. Y., ... & Rhee, M. H. (2008). Evaluation of antioxidant, antinociceptive, and anti-inflammatory activities of ethanol extracts from Aloe saponaria Haw. *Phytotherapy Research*, 22(10), 1389-1395.