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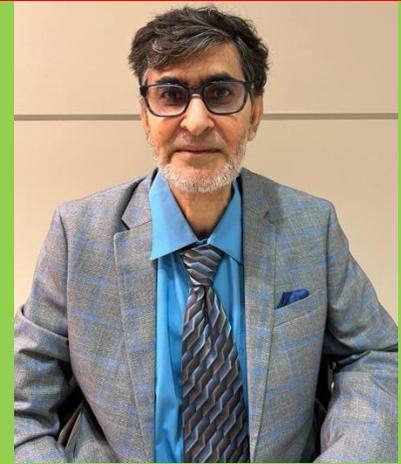
On behalf of BioNatural Healing College (BNHC), it is with great pleasure that we extend Thanks & appreciation to Dr. Tanveer Alam for the very informative research article and contribution to this January 2025 BNHC E-Magazine edition. We look forward to receiving his invaluable contribution in the future and wish Dr. Alam much success in future endeavors.



**BioNatural Healing
College**

**Healthy and Happy New
Year 2025**

Message: from the President of BioNatural Healing College (BNHC)



Greetings!

We are delighted to welcome you to the January 2025 edition of the BioNatural Healing College (BNHC) E-Magazine. It is with immense gratitude to the Almighty God that I take this opportunity to introduce this publication to our esteemed readers. I extend my heartfelt appreciation to all contributors, including our dedicated researchers and cherished readers, for their invaluable feedback and unwavering support.

This magazine is designed as an educational resource, offering insights and perspectives contributed by experts from around the globe. Please note that the content is intended solely for informational purposes, and the views expressed are those of the authors, independent of any affiliation with BNHC.

We hope this edition serves as a valuable source of knowledge and inspiration, fostering the continuous journey of learning and sharing wisdom across the seasons of life. On behalf of the BNHC team, I wish you all the best in health, happiness, and prosperity.

Warmest regards,

Dr. Nadir Sidiqi, Ph.D.



BioNatural Healing College

BioNatural Healing College Stands on Seven Core Pillar Foundations as follows:

1. All living organisms are made from the water this beautiful connection, connects us to praise the Creator of Creation for the provision of feeding, fueling, and healing to humanity.
2. No harm to public health and environmental health (Biodiversity) including pollinators, surface water, groundwater, soil, and air.
3. A series of complex chains involved with food production from the field to the mouth of the human body desperately needs scientific research to maximize healthy nutritionally food production and end malnutrition and food insecurity.
4. Harmful pests such as insects, and pathogens causing to human and plant health and loss of economic problems. BioNatural chemicals from plants, microorganisms, and ocean-living organisms exist and need further research to discover along with safety to utilize for the health improvement of humans as well as BioNatural Pest Management (insects, fungi, bacteria, various, nematodes, weeds, rodents, etc.).
5. Listen, love, appreciate, and respect with deep conscience and subconscious the connection between the genes of your body and beautifully ecologically in sense of feeling, feeding, fueling, and healing.
6. The brilliant human mind can irrigate with balance drinking clean water as a whole-body system to detoxify the toxicant from their body systems as well as to detoxify the soil, water, and environment from harmful chemicals, particularly pesticides through collaboration, and dedication from the individual, family, community, and scientific community locally and globally.
7. BioNatural Healing College provides a high-quality science base foundation through online education to fit and accommodate the needs of each prospective student for the sustainability and prosperity of his or her own, family, community, and humanity.

Natural Antioxidants: Sources, Mechanisms of Action, and Potential Applications

By *Dr. Tanveer Alam*

Sabanci University Nanotechnology Research and Application Center
Orta Mahalle, Universite Caddesi Istanbul, Republic of Turkey. Also,
at BioNatural Healing College (BNHC), we are delighted to have Prof.
Alam as a Faculty Member

Introduction: Antioxidants are substances that inhibit oxidation (often known as autoxidation), a chemical reaction that can produce free radicals. In biological systems, free radicals are frequently produced from oxygen, nitrogen, and sulfur compounds. These free radicals, which are part of groups of chemicals referred to as reactive oxygen species (ROS), reactive nitrogen species (RNS), and reactive sulfur species (RSS), can damage the DNA and cause the oxidation of lipids and proteins in cells. Normally, the antioxidant system in the human body can scavenge free radicals, maintaining the balance between oxidation and anti-oxidation [Fang et al., 2002; Peng et al., 2014; Li et al., 2015]. **Classification of antioxidants:** Antioxidants can be classified in several ways [Shahidi & Zhong 2010; Nimse & Pal 2015] (Fig. 1).

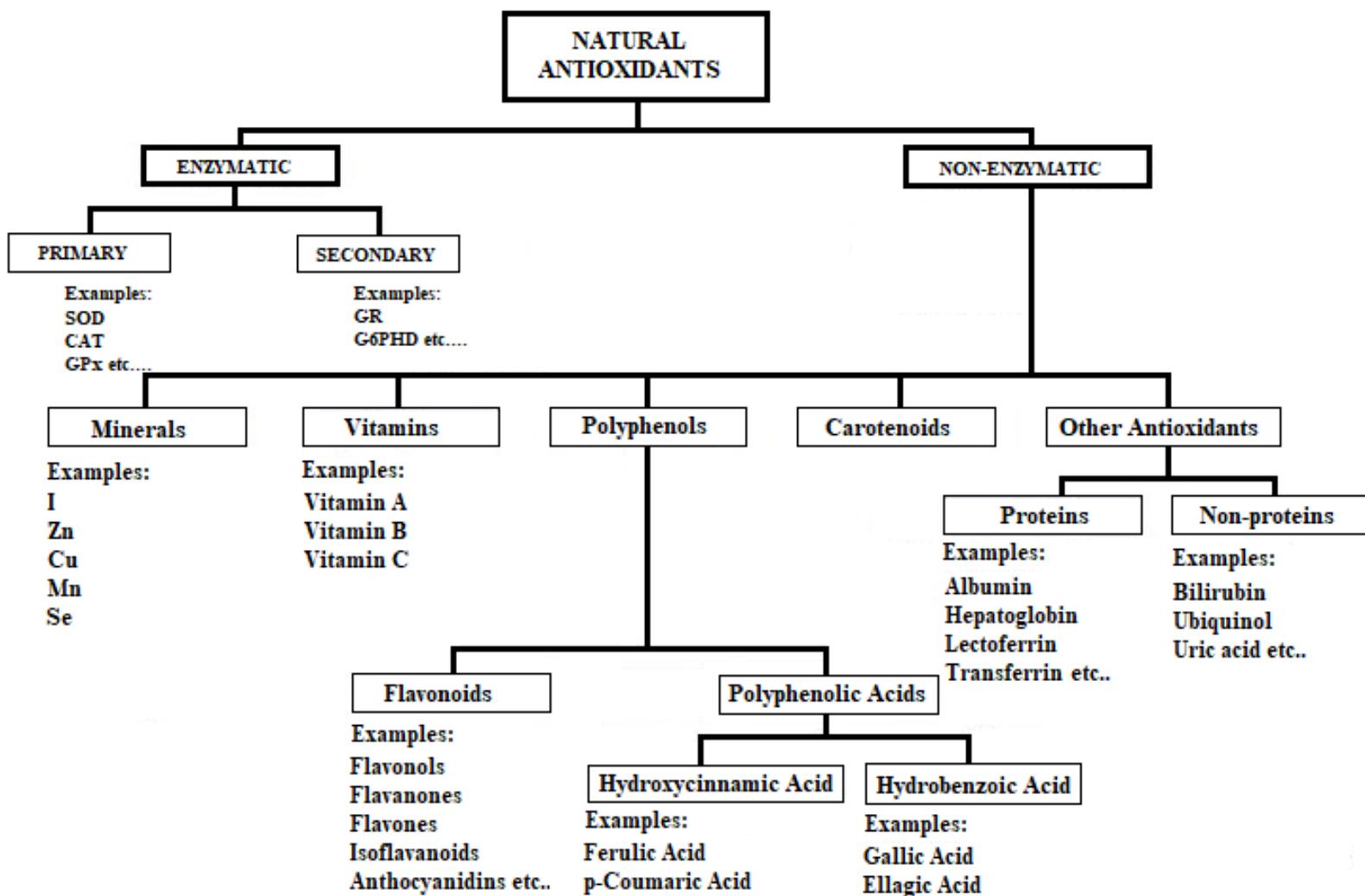


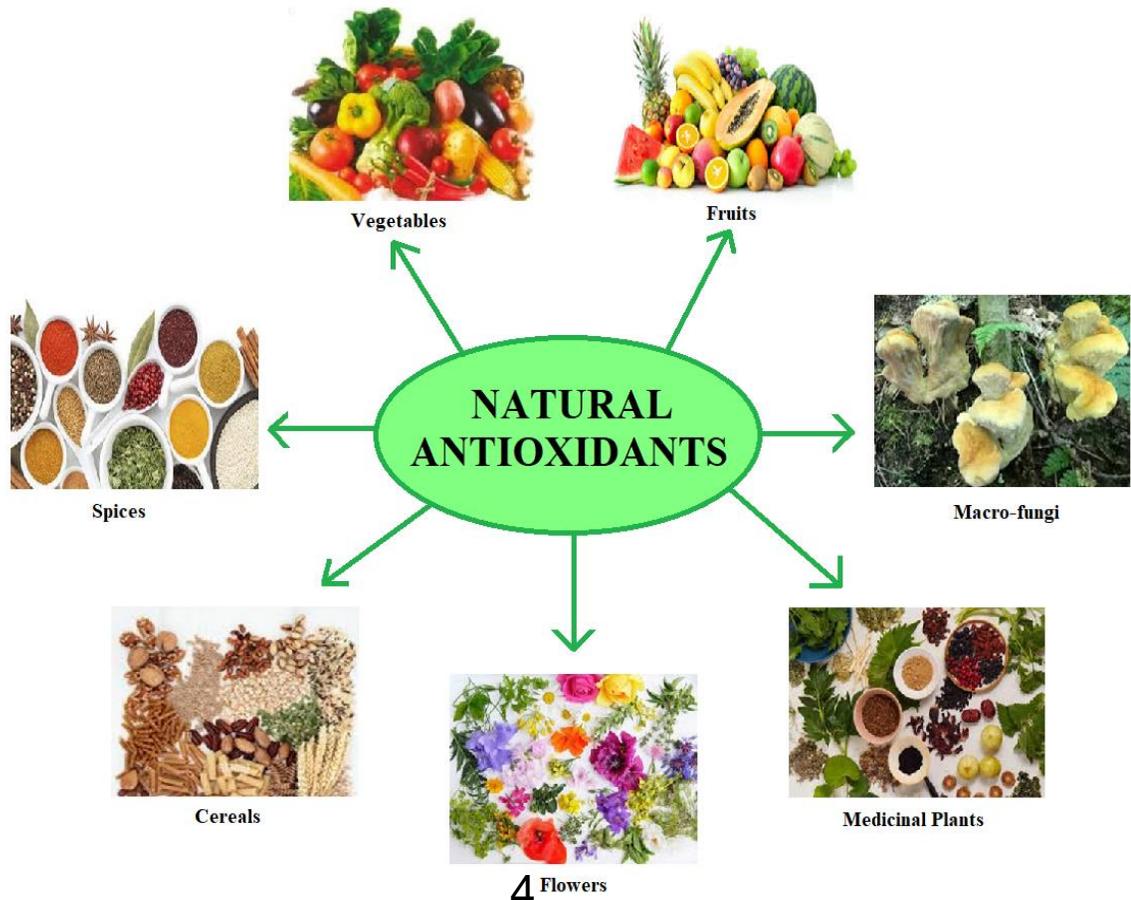
Fig. 1: Classification of Antioxidants

1. Based on their activity: They can be classified as enzymatic and nonenzymatic antioxidants. **Enzymatic antioxidants:** Enzymatic antioxidants are able to break down and get rid of free radicals. These are subcategorized into primary and secondary antioxidants. **Primary antioxidants:** Primary antioxidants are important antioxidant enzymes certainly produced by our body. These internal antioxidant enzymes serve as our body's most potent defense against free radicals and harmful inflammatory reactions. There are only 3 primary-antioxidants: Catalase (CAT), Glutathione Peroxidase (GPx) and SOD.

Secondary antioxidants: Secondary antioxidants, frequently known as hydroperoxide decomposers, act to convert hydroperoxides into nonradical, nonreactive, and thermally stable products. To yield synergistic stabilization effects, they are often used in combination with primary antioxidants. Glucose-6-phosphate dehydrogenase, Glutathione reductase, ubiquinone, and glutathione-s-transferase, are the secondary antioxidants. Iron, copper, zinc, manganese, and selenium also increase the antioxidant enzyme activities. **Non-enzymatic antioxidants:** Nonenzymatic antioxidants which act by interrupting free radicals chain reactions e.g. Vitamin C, vitamin E, plant polyphenol, carotenoids, and glutathione [Kunming 2022]. **2. Based on solubility:** Antioxidants can be classified as water-soluble or lipid-soluble antioxidants. Vitamin C is a type of water-soluble vitamin found in cellular fluids such as cytosol or cytoplasmic matrix while carotenoids are lipid soluble. **3. Based on size:** Antioxidants can be categorized as small or large-molecule antioxidants. The small molecule antioxidants neutralize the ROS in a process named radicals scavenging and carry them away. e.g. Vitamin C, vitamin E, carotenoids, and glutathione (GSH). Large molecule antioxidants include enzymes (SOD, CAT, and GPx) and sacrificial proteins (albumin) that absorb ROS and prevent them from attacking other essential proteins. **4. Based on their occurrence:** Antioxidants are categorized as synthetic or natural [Mathew et al., 2011; Hurrell 2003]. **Synthetic antioxidants** These are phenolic compounds that carry out the role of capturing free radicals and stopping the chain reaction. e.g. butylated hydroxyl anisole (BHA), butylated hydroxytoluene (BHT), propyl gallate (PG), metal chelating agent (EDTA), tertiary butyl hydroquinone (TBHQ), and nordihydroguaiaretic acid (NDGA).

Natural antioxidants: They are classified as chain-breaking antioxidants, which react with radicals and convert them into more stable products. Generally, antioxidants of this group are phenolic in structure and include the following (Fig. 2): [Cai et al., 2004; Shan et al., 2005; Fu et al., 2011; Fu et al., 2010; Fu et al., 2011].

- ***Antioxidant minerals:*** These are antioxidant enzymes cofactors like selenium, copper, iron, zinc, and manganese. Absence of the cofactors will definitely enhance many macromolecules metabolism such as carbohydrates.
- ***Antioxidant vitamins:*** These are important and required for most body metabolism functions such as vitamins C, E, and B.
- ***Phytochemicals:*** These are phenolic compound derivatives that are neither vitamins nor minerals. Examples include flavonoids, catechins, carotenoids, carotene, lycopene, and herbs and spices such as thyme, nutmeg, clove, black pepper, ginger, garlic, curcumin. and derivatives.



Mechanism of Lipid Peroxidation:

Lipid peroxidation is a free radical oxidation of polyunsaturated fatty acids (PUFAs) such as linoleic acid or arachidonic acid. The basic mechanism of lipid peroxidation is found in the radical chain reaction observed in typical autoxidation process, an oxidation by molecular oxygen (O_2): initiation-propagation-termination [Porter, 1986] (Fig. 3).

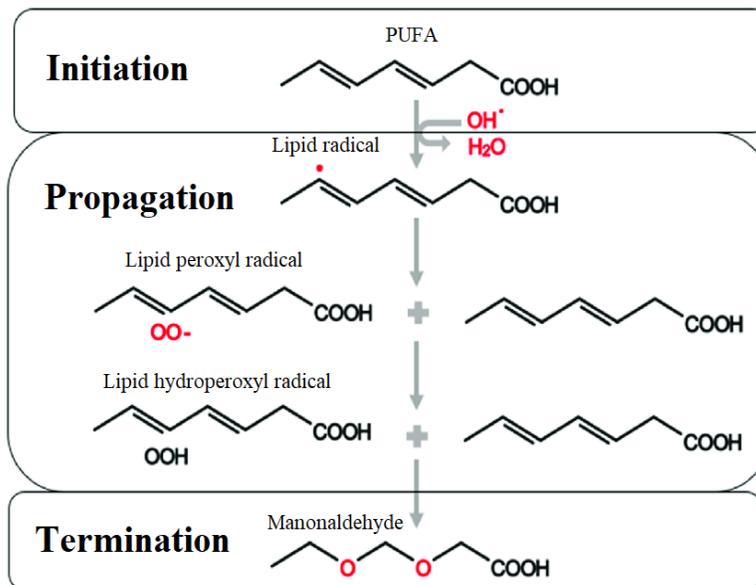


Fig. 3: Mechanism of Lipid Peroxidation

Effects of Lipid Peroxidation:

Effects of Lipid Peroxidation are:

1. Flavour Quality Loss:

The quality of flavour is affected due to;

- Rancidity
- Change of color and texture
- Consumer Acceptance
- Economic loss

• 2. Nutritional Quality Loss:

- Essential fatty acids
- Vitamins

3. Health Risk:

- Toxic compounds
- Growth retardation
- Heart diseases

Potential Applications of Antioxidants: 1. Therapeutic Applications:

Epidemiological studies have been reported that many antioxidant compounds possess anti-inflammatory, antiatherosclerotic, antitumor, antimutagenic, anticarcinogenic, antibacterial and antiviral activities to greater or lesser extent [Sala et al., 2002] (Fig. 4).



Fig. 4: Action of Antioxidants on Lipid Peroxidation

(i) Antioxidants in Cardiovascular Diseases: Antioxidant vitamins and minerals, such as vitamins A, E, and C, and zinc may slow the development and progression of CVD. Antioxidant therapy may inhibit atherosclerosis and thereby prevent the clinical complications of the disease such as CAD, and in particular, MI [Diaz et al., 1997].

(ii) Antioxidants in Cancer Treatment: Antioxidants prevent cellular damage by reacting and eliminating oxidizing free radicals thereby finding relevance in adjuvant chemotherapy. **(iii) Antioxidants in Brain Injury:** Antioxidants are generally used as medications to treat various forms of brain injuries.

(iv) Antioxidants in Stroke Treatment: Polyphenols comprise a diverse group of antioxidants, sharing a common feature of containing at least one aromatic ring with multiple hydroxyl groups are being used in the treatment of Stroke. **(v) Antioxidants in Neurodegenerative Diseases:** Antioxidants are being used in the treatment of neurodegenerative diseases such as Alzheimer's disease, Parkinson disease, and amyotrophic lateral sclerosis.

(vi) Antioxidants in Apoptosis: Antioxidants are also used to prevent oxidative stress in neurons and prevent apoptosis and neurological damage. **(vii) Antioxidants in Liver Damage:** Antioxidants are also used to prevent the damage to liver caused by excessive use of alcohol.

2. Food Preservation: Antioxidants are used as food additives to help guard against food deterioration. Consequently, packaging of fresh fruits and vegetables contains an ~8% oxygen atmosphere milk and milk products like cheese; meat, fish and their products; spices and other dry foods like sugar, honey, beverages, and chewing gum [Kader Williamson et al., 1989]. **3. Nutraceuticals and Cosmetics:**

Antioxidant preservatives are also added to nutraceuticals and fat-based cosmetics such as lipstick and moisturizers to prevent rancidity.

4. Industrial uses: Antioxidants are frequently added to industrial products. They are widely used to prevent the oxidative degradation of polymers such as rubbers, plastics and adhesives that causes a loss of strength and flexibility in these materials.

Conclusions: Antioxidants are substances that have a positive impact on human health by protecting the body from free radicals and UV light. Free radicals constantly attack human cells, causing irreversible damage that might result in immunosuppression, photoaging, and photocarcinogenesis. That has a negative impact on skin health and causes a number of disorders. Since antioxidants stop these alterations, and can be utilized to treat and slow down the aging process.

References

- Cai Y.Z., Luo Q., Sun M., Corke H. Antioxidant activity and phenolic compounds of 112 traditional Chinese medicinal plants associated with anticancer. *Life Sci.* 2004;74:2157–2184. doi: 10.1016/j.lfs.2003.09.047.
- Diaz MN, Frei B, Vita JA, Keaney JF. Antioxidants and atherosclerotic heart disease. *N Eng J Med.* 1997;337:408–16.
- Fang Y.Z., Yang S., Wu G. Free radicals, antioxidants, and nutrition. *Nutrition.* 2002;18:872–879. doi: 10.1016/S0899-9007(02)00916-4.
- Fu L., Xu B.T., Gan R.Y., Zhang Y., Xu X.R., Xia E.Q., Li H.B. Total phenolic contents and antioxidant capacities of herbal and tea infusions. *Int. J. Mol. Sci.* 2011;12:2112–2124. doi: 10.3390/ijms12042112.
- Fu L., Xu B.T., Xu X.R., Gan R.Y., Zhang Y., Xia E.Q., Li H.B. Antioxidant capacities and total phenolic contents of 62 fruits. *Food Chem.* 2011;129:345–350. doi: 10.1016/j.foodchem.2011.04.079.
- Fu L., Xu B.T., Xu X.R., Qin X.S., Gan R.Y., Li H.B. Antioxidant capacities and total phenolic contents of 56 wild fruits from south China. *Molecules.* 2010;15:8602–8617. doi: 10.3390/molecules15128602.

- Hurrell RF. Influences of vegetable protein sources on trace element and mineral bioavailability. *Journal of Nutrition*. 2003;133(9):2973S-2977S
- Kader, A., Zagory, D., Kerbel, E., *Crit. Rev. Food Sci.Nutr.*, 1989; 28(1): 1-30. <https://doi.org/10.1080/10408398909527490126>.
- Kunming Liu. Different Types of Antioxidants and its Importance. *Oxidants and Antioxidants in Medical Science*. 2022;(11)1:1-1.
- Li S., Tan H.Y., Wang N., Zhang Z.J., Lao L., Wong C.W., Feng Y. The role of oxidative stress and antioxidants in liver diseases. *Int. J. Mol. Sci*. 2015;16:26087–26124. doi: 10.3390/ijms161125942.
- Mathew BB, Tiwari A, Jatawa SK. Free radicals and antioxidants: A review. *Journal of Pharmacy Research*. 2011;4(12):4340-4343.
- Nimse SB, Pal D. Free radicals, natural antioxidants, and their reaction mechanisms. *Royal Society of Chemistry Advances*. 2015;5:27986-28006.
- Peng C., Wang X., Chen J., Jiao R., Wang L., Li Y.M., Zuo Y., Liu Y., Lei L., Ma K.Y., et al. Biology of ageing and role of dietary antioxidants. *BioMed Res. Int*. 2014;2014:831841. doi: 10.1155/2014/831841.
- Porter N.A. Mechanisms for the autoxidation of polyunsaturated fatty acids. *Acc. Chem. Res*. 1986;19:262–268. doi: 10.1021/ar00129a001.
- Sala, A., Recio, M. D., Giner, R. M., Manez, S., Tournier,H., Schinella, G., Rios, J. L., *J. Pharm. Pharmacol*.2002;54(3):365-371.
- Shahidi F, Zhong Y. Novel antioxidants in food quality preservation and health promotion. *European Journal of Lipid Science Technology*. 2010;112:930-940.
- Shan B., Cai Y.Z., Sun M., Corke H. Antioxidant capacity of 26 spice extracts and characterization of their phenolic constituents. *J. Agric. Food Chem*. 2005;53:7749–7759. doi: 10.1021/jf051513y.
- Williamson, G., Day, A. J., Plumb, G. W., Couteau, D.,*Biochem. Soc. Trans.*, 2000;28:16-22.

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Congratulations Graduation!

BioNatural Healing College (BNHC) would like to extend esteem.

Congratulations! Mrs. Zarghuna Bashary, Diploma Herbal Science & Master Herbalist with Outstanding during her study 2023-2024. Also , BNHC is very pleased to have Mrs. Bashary as Student Academic Advisor at BNHC

I express my gratitude to God for my Graduation from BioNatural Healing (BNHC) with an earned diploma in Herbal Science & Master Herbalist. I would like to take this moment to acknowledge the exceptional educational programs offered by the BioNatural Healing College (BNHC). This college teaches the information to individuals seeking to harness the natural resources that God has provided, significantly influencing both personal and societal well-being. The mission of online universities is to provide high-quality and accessible education to all. Also, the BioHealing Natural College (BNHC) is committed to delivering a thorough educational experience that focuses on holistic and healing nutrition science through online distance learning. Each course includes a variety of online materials, assignments, examinations, and papers, all of which greatly enhance the knowledge shared by BNHC's distinguished instructors. The college allows students to progress at their own pace, and the tuition for online classes at BNHC is notably more affordable compared to other colleges.

This enables students to gain valuable insights across multiple disciplines at a reasonable cost. Fortunately, I am one of the students who could earn my diploma successfully to improve my life. I want to illustrate that, despite my roles as a woman and a mother, demonstrating that anyone who is determined can achieve their significant aspirations. Furthermore, I would like to express my sincere gratitude to the esteemed Dr. M.Nadir Sidiqi because he is a talented, hard worker and patient professor with extraordinary commitment; his character exemplifies knowledge, patience, and courage in addressing questions, along with a profound understanding of the challenges faced by students. I have no words that can fully encapsulate his talent as he is. Throughout my learning duration, I have gained knowledge about medicinal plants, including their properties and safe applications. This course not only delves into herbal science and therapy but also addresses various biological health conditions as well.



In the continuation of my online study, I want to mention my studies with (BNHC) I gained knowledge of medicinal plants that provided an overview of medicinal plants. In addition to herbal science and herbal therapy, this course examines various health conditions and provides supporting evidence for specific herbal treatments. Besides, I gained insight into aromatherapy, focusing on essential oils and their therapeutic effects, supported by research and the art of using natural essential oils. Also, in the subject of Introduction to Acupuncture, I learned about its historical background and fundamental principles, including the five elements associated with the science of acupuncture. I also studied essential microbiology and the uses of vitamins, minerals, and herbs. Moreover, I studied an introduction to human biology, which provides an overview of the human body at the microscopic level, detailing cells, tissues, organs, and systems and emphasizing the importance of these components in maintaining life processes. In addition, I learned about the uses and importance of choosing the right plants for the treatment of all diseases, such as arthritis, asthma, cold and flu, cough, constipation, cancer prevention, fever, and many other conditions. Finally, I found and learned a lot about the course "Green Prescriptions" very interesting because it deals with the importance of green herbs and their use as a natural pharmacy. Recently, once again, I would like to thank Dr. Sidiqi Sahib for his hard work and his entire faculty, Board of Directors, and employees for providing such an educational reference at a low cost, and I would like to express my special thanks to Mr. Wais Seddiqi the coordinator of (BNHC), he is a hard worker and patient worker of this college.

Sincerely,

Zarghuna Bashary, B.A.

Diploma in Herbal Science & Master Herbalist

Folsom, California, USA.

BioNatural Healing College



BioNatural Healing College (BNHC) would like to express esteem thank you for the donation of the generous Gift of Education Scholarship for students in need.

Donation Gift of Education

Mr. Mustafa Attiqullah, Maple Valley, State of Washington.

Amount of Donation: \$500 (continue \$250 per month to cover Tuition fee \$2,500).

Thank you,

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Scholarship awards are granted to eligible students in need who are enrolled in the Online Master's Degree/Diploma Program at BioNatural Healing College (BNHC) following verification of their enrollment as part of the Gift of Education initiative.

With the utmost respect and profound gratitude, I would like to express my deep appreciation to the honorable Dr. Mohammad Nadir Sidiqi and Mr. Mustafa Attiqullah for their generous support in providing the necessary funds and tuition fee (scholarship) for my continuing education (Online MS Degree in BioNatural Health Sciences) at **BioNatural Healing College (BNHC)**. Their unwavering and invaluable generosity facilitated my academic growth and instilled in me great hope and motivation to pursue the path of progress and success in life. My heartfelt prayers will accompany them, and I hope their efforts yield fruitful results and their lives are filled with happiness and pride with the entire team at BioNatural Healing College (BNHC). Additionally, pursuing online studies in "Plant Health Improvement & Environmental Health" at BioNatural Healing College (BNHC) has provided me with a unique opportunity to gain professional knowledge and skills in environmental conservation and sustainable development. Today's world, more than ever, requires aware and responsible specialists capable of addressing environmental challenges and offering effective solutions to mitigate the adverse impacts of human activities on nature. Acquiring professional expertise at this BNHC not only helps me develop a deeper understanding of environmental phenomena and modern technologies but also enables me to play a more effective role in areas such as planning, natural resources management, and environmental policymaking. This Online BNHC education equips me with the necessary tools to improve our planet's state and safeguard the future of upcoming generations. The valuable support of Dr. Mohammad Nadir Sidiqi, Mr. Mustafa Attiqullah, and the entire BNHC team in providing the educational resources for this vital endeavor has been not only an academic gateway but also an enjoyable environment. I hope to make the most of this priceless opportunity, achieve commonable results, and demonstrate my gratitude through my actions. With renewed respect and sincere regards,

Ataulhaq Bashari



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Mission: BioNatural Healing College is a non-profit public benefit institution that has tax-exempt status under the Internal Revenue Service, Section 501(c)(3) of the United States of America. Our goal is to offer a high-quality education a diploma program as well as holistic health and nutrition conferences, seminars, workshop, and continuing education. The focus of these educational programs is to offer healing and holistic nutrition science through online distance learning. These dynamic online education programs will provide diverse adult learners throughout the world the experience of enhancing their quality of life, their health, and their happiness.

Vision: The faculty, staff and management team of BioNatural Healing College are passionately committed to providing the best teaching possible in this field. We seek to encourage, motivate and explain the importance of this field to prospective students so that they may make an informed decision regarding enrollment. We seek an ultimate goal of satisfaction for the student based on responsibility, commitment, respect, awareness and sustainable education for society.

Accreditation and Recognition: BioNatural Healing College is based in California. It is an institution that has the goal to deliver on- demand online distance learning around the globe. This education is of high quality and vocational in nature. BioNatural Healing College is a legal business entity that has been approved to operate by the State of California's Bureau for Private Postsecondary Education that set forth in the educational code. BioNatural Healing College is not accredited by the United States Department of Education. BioNatural Healing College is a member of the American Holistic Health Association (AHHA).

