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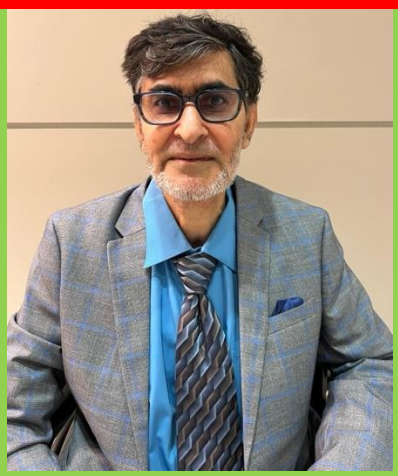
On behalf of BioNatural Healing College (BNHC), it is with great pleasure that we extend Thanks & appreciation to **Mr. Sayed Obaidullah Sayedy, and Mr. Najiullah Karimi** *for their very informative research articles and contribution to this March 2025 BNHC E-Magazine edition. We look forward to receiving their invaluable contribution in the future and wish them all much success in their future and*

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



Greetings!

We are delighted to welcome you to the April 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.

Factors Contributing to Plant Diseases

By Sayed Obaidullah Sayedy MS Student BioNatural Health Sciences at BioNatural Healing College (BNHC)

Introduction: The study of plant diseases, a branch of agriculture biology particularly plant pathology, examines the nature, causes, progression, and control methods of ailments affecting plants. This field encompasses pathogen-plant interactions, disease etiology, pathogen classification, disease cycles, epidemiology, and resistance mechanisms. The significance of this research lies in its impact on agriculture, food security, and human well-being. Plant pathogens cause the loss of millions of tons of crops annually, threatening global food availability and ecological stability (Singh et al., 2020; Singh et al., 2021). Throughout history, plant diseases have triggered mass migrations and human fatalities, underscoring their potential to disrupt public health and societal order (Singh et al., 2020). Comprehending plant diseases is vital for developing effective management strategies. While traditional chemical approaches are effective, they can be expensive, environmentally detrimental, and may result in pest resistance (Singh et al., 2021). Consequently, there is growing interest in sustainable alternatives such as biological control measures, enhanced plant immunity, and precision agriculture techniques. Furthermore, studying plant diseases is crucial for ensuring food safety, preventing Agrobioterrorism, and maintaining good health practices from production to consumption. Plant diseases, which significantly threaten agriculture, food security, and the environment, are responsible for substantial crop yield losses worldwide. Various pathogens, including viruses, bacteria, Oomycetes, fungi, and nematodes, cause these diseases, with fungi being the primary culprit for large pre-harvest losses (Silva et al., 2019). The conventional use of agrochemicals to control plant pathogens has raised concerns due to their negative effects on human health and the environment. This situation necessitates alternative, sustainable methods to manage plant diseases and ensure food security for the growing global population.

While agriculture contributes significantly to environmental issues such as biodiversity loss and climate change, it also has the potential to mitigate these problems through sustainable practices (Umesha et al., 2018). This dual role of agriculture highlights the complexity of addressing plant diseases while preserving ecological balance. This paper aims to explore different plant diseases, including Biotic, Abiotic, Genetic, Human Activities, and Control and Prevention Strategies.

Factors affecting plant diseases: Biotic Factors: Plant diseases caused by fungi, such as rusts, smuts, and mildews, are responsible for substantial crop losses and economic harm (Money, 2002). These fungal pathogens primarily target plant foliage, resulting in significant yield reductions in crucial crops like wheat. Two notable examples of fungal diseases affecting global wheat production are wheat stripe rust and powdery mildew. These pathogens, caused by *Puccinia striiformis* and *Blumeria graminis* respectively, invade the leaf surface and can lead to considerable yield decreases. Barley is also vulnerable to powdery mildew, leaf rust, stem rust, and smuts, with prevalence rates between 40% and 60% in certain areas. Various factors, including temperature and plant susceptibility, influence the progression of these diseases. For example, powdery mildew tends to be more severe on lower leaves, while leaf rust exhibits higher severity on upper leaves. The pathogens' capacity to generate large quantities of spores contributes to their swift spread and potential to overcome plant resistance (Kumar et al., 2024). Fungal diseases not only diminish crop yield but also impact the quality of harvested products. Crops infected by leaf pathogens such as mildews, rusts, and Septoria often produce shriveled seeds. Furthermore, certain fungi like *Fusarium* can produce mycotoxins, posing health risks to humans and animals (Ekom et al., 2015). Plant viruses, including tobacco mosaic virus (TMV), are crucial in plant pathology and can result in significant economic damage to agriculture.

These pathogens can spread through various means and vectors, impacting crop yields and overall plant well-being. TMV, one of the most thoroughly researched plant viruses, is primarily spread through mechanical means from infected to healthy plants with damaged leaves. Unlike many other plant viruses, TMV lacks a known aphid vector, though some studies have demonstrated limited aphid transmission under specific circumstances. TMV exhibits remarkable stability in the environment and can remain viable in tobacco products for extended periods. While TMV is not typically transmitted through seeds, research has shown that it can infiltrate seeds via maternal tissue, though this doesn't necessarily result in infected seedlings (De Assis Filho & Sherwood, 2000). In contrast, viruses such as Turnip yellow mosaic virus (TYMV) can enter seeds from both parents and achieve seed transmission (De Assis Filho & Sherwood, 2000). Plant viruses employ various transmission strategies, including horizontal transfer through vectors such as insects, fungi, and nematodes, as well as vertical transmission through seeds. Insect vectors, particularly aphids, thrips, and whiteflies, are key in disseminating many plant viruses. For example, the Tomato spotted wilt virus (TSWV) and Cucumber mosaic virus (CMV) are common in tropical regions and can cause significant crop damage. Weeds also contribute significantly to virus epidemics by acting as reservoirs for both viruses and their vectors (Korbecka-Glinka et al., 2021). This highlights the necessity of efficient weed management in controlling virus spread in agricultural settings. Nematodes and parasitic plants such as mistletoes pose considerable threats to plant health, resulting in substantial economic losses globally. Plant-parasitic nematodes are major crop pests, including bananas, and can severely damage root systems. These parasites have an extensive evolutionary history, with the oldest known plant-parasitic nematode dating to the Devonian era. Various factors can influence the impact of nematodes on plants. For instance, exposure to temperature stress can alter plant resistance to nematode infections. Brief chilling of potato plants before nematode infestation resulted in a reduction in average parasite abundance and lower clustering of parasitic nematodes in the host plant population. Likewise, parasitic plants such as mistletoes can have multifaceted effects on their host plants. While mistletoe's presence decreased the number of leaf-chewing insects on host trees, it unexpectedly increased overall herbivory levels (Belchior et al., 2022).

Abiotic Factors: Plant growth, development, and disease susceptibility are greatly influenced by extreme temperatures, both high and low. Chilling injuries can occur at temperatures between 0°C and 15°C while freezing stress happens below 0°C (Devi et al., 2023). These conditions can harm the photosynthetic system, interfere with water and nutrient processes, and cause cells to dehydrate. When temperatures rise 10°C-15°C above normal levels, proteins may denature, membrane lipid fluidity can change, and enzymes may become inactive. These temperature extremes affect various aspects of plant physiology, morphology, and biochemistry, ultimately reducing crop yields. Temperature stress can also increase plants' vulnerability to diseases. Climate change-related higher temperatures often exacerbate plant disease severity. When temperature stress and pathogen attacks occur simultaneously, plants may respond differently than they would to each stress individually, underscoring the intricate nature of plant-pathogen interactions under temperature stress (Cohen & Leach, 2020). Water stress, including drought, waterlogging, and inadequate irrigation, can profoundly impact plant growth and development. Drought stress induces wilting and can result in plant death within 9-15 days of exposure. It diminishes chlorophyll content, photosynthetic rate, and biomass accumulation. Waterlogging, which occurs when soil becomes saturated due to excessive rainfall or improper irrigation, can cause seed rot, lower germination rates, and decrease seedling survival. It also affects root structure, leading to the formation of adventitious roots. Both drought and waterlogging stress restrict plant growth, reduce leaf chlorophyll content, and decrease net photosynthetic rate. These stresses also cause plants to reflect more visible light in the 460-670 nm range while reflecting less near-infrared light in the 780-1050 nm range (Liang et al., 2011).

Genetic Factors: The complexity of plant disease resistance and susceptibility is rooted in sophisticated genetic mechanisms. While most plants exhibit natural resistance to numerous pathogens, susceptibility is less common. This defense is achieved through an advanced dual-layered immune system that has developed to counter pathogen invasions. From a genetic perspective, plant pathogen resistance can be classified into two categories: qualitative and quantitative. Qualitative resistance, typically governed by major genes, is often effective against biotrophic pathogens. In contrast, quantitative resistance involves multiple minor-effect genes and protects a wider range of pathogens, including biotrophs, hemibiotrophs, and necrotrophs. The gene-for-gene concept, which emerged from research on the flax plant-flax rust pathosystem, elucidates how a host plant's resistance gene product identifies a corresponding pathogen gene product, resulting in disease resistance (Ayliffe et al., 2022). Monocultures, which consist of genetically uniform crop populations, are particularly vulnerable to disease outbreaks due to their limited genetic diversity. This susceptibility arises because parasites can more readily exploit genetically homogeneous host populations. In agricultural contexts, the severe consequences of infectious diseases in crop monocultures have been extensively documented, underscoring the risks associated with genetic uniformity. The interplay between genetic diversity and disease resistance is intricate and depends on various factors. Although experimental studies consistently demonstrate that genetic diversity decreases parasitism by about 20% for non-crop hosts and 50% for crop hosts, observational studies of natural populations yield mixed results. Notably, in certain instances, heightened parasite genetic diversity can result in increased parasite prevalence, as evidenced by experiments with Daphnia magna populations (Ganz & Ebert, 2010).

Human Activities: a. Agricultural Practices: The excessive application of pesticides and fertilizers can have a profound effect on plants' inherent defense mechanisms and contribute to the development of resistant pathogen populations, resulting in a self-perpetuating cycle of increased reliance on agricultural chemicals. Overuse of pesticides can compromise plants' natural protective systems. For example, glyphosate, a widely used herbicide, significantly disrupts the Shikimic acid pathway-based plant defenses against microbial infections in vulnerable plants. This disruption of plants' innate immunity renders them more susceptible to pathogens. Moreover, the widespread use of biopesticides has resulted in pest resistance and diminished soil productivity. While herbicides can sometimes stimulate plant defenses against certain pathogens, the overall consequences of pesticide overuse are predominantly negative. The persistent and excessive utilization of synthetic pesticides has resulted in the more frequent emergence of pesticide-resistant pathogens. This development of resistance is further intensified by the capacity of generalist herbivores, such as the two-spotted spider mite, to adapt to both plant defenses and pesticides. Adaptation to challenging host plants can reduce susceptibility to unrelated pesticide classes, indicating a connection between overcoming plant defenses and developing pesticide resistance (Dermauw et al., 2012). Inadequate irrigation practices can substantially contribute to the emergence and proliferation of diseases such as root rot and fungal infections in various crops. Excessive or improper irrigation methods can create conditions conducive to pathogen growth and disease progression. Drip irrigation techniques have demonstrated greater effectiveness in reducing disease incidence compared to furrow irrigation. A study on Chile plants revealed that alternate row furrow irrigation resulted in significantly higher root rot disease incidence caused by *Phytophthora capsici* compared to daily or 3-day drip irrigation. Likewise, in sugarcane cultivation, the detection of Fusarium in irrigation water suggests that root rot disease could originate from the irrigation water and subsequently spread as a soil-borne disease (Xie et al., 1999).

b. Global Trade and Transportation: The international exchange and transportation of agricultural products play a significant role in the dissemination of plant diseases and pathogens across different regions, presenting a considerable risk to global agricultural productivity and biosecurity. The growth of worldwide trade in agricultural goods, along with the increased movement of individuals and commodities across borders, has substantially elevated the likelihood of introducing foreign plant diseases. Plant pathogens and their vectors traverse national boundaries through both natural means and human-influenced commercial activities. A prime example is the worldwide spread of Zymoseptoria tritici, a major wheat fungal pathogen, which has been aided by the global agricultural trade, altering its genetic structure and creating opportunities for increased virulence. Additionally, the emergence of sorghum ergot, Karnal bunt of wheat, potato late blight, and citrus Tristeza serve as recent instances of diseases gaining heightened significance due to the movement of plant pathogens or vectors through trade (Bandyopadhyay & Frederiksen, 1999). **c. Deforestation and Land Use Changes:** The emergence of new plant diseases is significantly influenced by changes in land use and deforestation through several mechanisms. The expansion of agriculture, clearing of forests, and fragmentation of habitats create opportunities for local pathogens to interact with crops, potentially causing disease transmission. These activities also modify vector breeding locations, the distribution of reservoir hosts, and biodiversity, which can impact how pathogens spread. Transforming natural environments for farming, timber harvesting, and urban development leads to swift ecological changes, affecting food chains and the natural equilibrium among vectors, hosts, and pathogen reservoirs.

Furthermore, the global movement of goods and increased trade facilitate the worldwide introduction of new plant species and pathogens, setting the stage for novel interactions between plants and disease-causing organisms. Climate change, partially resulting from deforestation, alters temperature, rainfall patterns, and CO2 concentrations, further impacting the physiology, timing of life cycle events, and geographical distribution of plants and microbes. The combination of these factors creates an environment conducive to the development and spread of new plant diseases, potentially resulting in significant epidemics in both wild plant populations and cultivated crops (Gilbert & Parker, 2023). **Control and Prevention Strategies: a. Integrated Pest Management (IPM):** Integrated Pest Management (IPM) represents a comprehensive and eco-friendly method of pest control that integrates biological, cultural, physical, and chemical strategies to reduce health and environmental risks. This approach focuses on comprehending pest lifecycles and their environmental interactions, employing a range of techniques such as biological control, cultural practices, physical barriers, and targeted chemical applications. IPM tactics encompass cultural methods like promoting healthy crop growth, using trap crops, rotating crops, and implementing crop combinations. The biological control aspect involves deploying beneficial insects to manage pests, while host plant resistance focuses on developing pest-resistant crop varieties (Sharma, 2023). Eco-friendly physical and mechanical control methods, including barriers and traps, are also utilized (Sharma, 2023). When chemical control is necessary, it prioritizes selective insecticides that minimize harm to natural predators and the environment. Rather than being a binary system, IPM operates on a spectrum from chemically intensive to bio-intensive approaches (Riyaz & Kathiravan, 2019). Despite its success in various agricultural contexts, IPM faces obstacles such as farmers' limited knowledge, resource accessibility, and resistance management, which impede its widespread adoption. The future of IPM involves incorporating digital technologies, precision agriculture, biotechnological advancements, and climate-resilient strategies to ensure sustainable food production and global food security (Sharma, 2023).

b. Breeding for Disease Resistance: Genetic modification and selective breeding play crucial roles in developing disease-resistant plant varieties, addressing the challenges of food security and sustainable agriculture. Conventional breeding methods, while successful, can be slow to keep pace with pathogen adaptation and are limited by the genetic variability in cultivated varieties (Buitatti & Ingram, 1991). To overcome these limitations, researchers have employed various innovative approaches. Marker-assisted selection (MAS) has emerged as a powerful tool in breeding disease-resistant crops, particularly when resistance is controlled by one or a few genes with large effects. For cases involving many genes of small effect, genomic selection (GS) may be more efficient. Next-generation sequencing (NGS) technologies have significantly impacted plant breeding by enabling rapid analysis of genetic data and identification of important plant traits associated with disease resistance. Additionally, genetic engineering offers an alternative approach to conventional breeding, allowing for the enhancement of disease resistance through the manipulation of various components of the plant immune system. Genetic modification and selective breeding aim to improve crop resistance, but they also present challenges. Intellectual property systems associated with these technologies can impact small breeding companies and farmers However, these systems can also be used to promote good agricultural practices, such as effective disease resistance management regimes Furthermore, Somaclonal variations induced in plant cell and tissue culture offer an alternate approach to conventional breeding and transgenic methods for introducing desirable genetic variability (Anil et al., 2018). **c. Cultural Practices:** In agricultural systems, disease risk can be effectively mitigated through cultural methods such as crop rotation, sanitation, and planting practices:

Crop rotation, a key disease management technique, involves sequentially growing different crops in the same field. This approach disrupts disease cycles by denying pathogens their preferred hosts. For instance, alternating cereals with legumes or oilseeds can substantially decrease the likelihood of crop-specific diseases. Beyond reducing pathogen inoculum, crop rotation enhances soil fertility and crop yield. Research indicates that corn-soybean rotations present considerably lower risk compared to monoculture methods, partly due to increased yields and decreased expenses (Helmers et al., 2001). Sanitation techniques, including the elimination of crop residues and alternative host plants, play a vital role in diminishing the pathogen inoculum. These actions help thwart the persistence and dissemination of plant pathogens between growing periods. Furthermore, effective weed management can reduce potential disease reservoirs. Planting strategies such as modifying planting dates, optimizing plant density, and regulating irrigation can establish conditions unfavorable to pathogens while fostering crop health. For example, wider plant spacing can lessen disease pressure by enhancing air movement within the crop canopy (Gilbert & Parker, 2023). **d. Chemical and Biological Treatments:** The use of synthetic fungicides and bactericides to combat plant pathogens is becoming more restricted due to environmental and health issues, as well as the emergence of resistant pathogen populations. In response, biological control agents (BCAs) are becoming increasingly important in integrated pest management approaches (Ribera & Zuñiga, 2012). Additionally, **BioNatural Pest Management** is a sustainable, science-backed approach that promotes plant health, which was an innovative idea by researcher Dr. Nadir Sidiqi at **BioNatural Healing College** , while preserving environmental integrity. Instead of relying on synthetic pesticides, this method integrates phytopesticides, and biological, ecological, and mineral-based solutions to naturally manage pests and diseases.

Among beneficial fungi, Trichoderma species have demonstrated efficacy as biocontrol agents against various plant pathogens. These fungi function as opportunistic plant symbionts and parasites of other fungi, helping to control diseases caused by pathogens such as Phytophthora, Fusarium, and Pythium. Entomopathogenic fungi (EPF) are also utilized to manage insect pests, with species like Verticillium lecanii, Paecilomyces fumosoroseus, and Beauveria bassiana being developed into commercial products (Wraight, 2001). Insects can also act as biological control agents, with some species capable of producing antifungal peptides to fight harmful fungal strains. Furthermore, bacteria-based BCAs, particularly those derived from Bacillus species, show potential in integrated disease management systems (Jacobsen et al., 2004). These biological control methods offer several benefits, including environmental safety, decreased likelihood of resistance development, and compatibility with integrated pest management strategies (Sharma & Gothalwal, 2020; Singh et al., 2018).

Conclusion: To summarize, a multifaceted array of biotic, abiotic, genetic, and anthropogenic elements influences plant diseases. Biological agents like fungi, viruses, nematodes, and insects represent major threats to plant well-being, resulting in significant agricultural economic damage. Environmental stressors such as extreme temperatures, water scarcity, soil acidity or alkalinity imbalances, and atmospheric contamination can weaken plants, increasing their vulnerability to diseases. Genetic factors are critical in determining plant resistance or susceptibility, with single-crop farming systems being particularly at risk of disease outbreaks due to limited genetic variability.

Human activities, including farming methods, international commerce, and forest clearing, have considerably contributed to the dissemination and emergence of plant diseases. Excessive use of pesticides and fertilizers, inefficient irrigation practices, and the worldwide transportation of agricultural products have intensified these problems. To combat these issues, various control and prevention tactics have been established. Integrated Pest Management (IPM) provides a comprehensive strategy that combines biological, cultural, physical, and chemical approaches. The development of disease-resistant crops through genetic engineering and selective breeding has shown potential in creating hardy plant varieties. Agricultural practices such as crop rotation, sanitation, and improved planting methods help mitigate disease risks. Furthermore, the application of biological control agents as substitutes for chemical treatments is gaining traction in sustainable farming. As plant diseases continue to adapt and present new obstacles, ongoing scientific inquiry and the creation of innovative strategies will be essential for preserving global food security and sustainable agricultural practices. The incorporation of cutting-edge technologies, climate-resilient approaches, and eco-friendly methods will be crucial for effectively managing plant diseases in the years to come.

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The Importance of Nutrition Science in Daily Life

By Najiullah Karimi MS Degree Student in BioNatural Health Sciences at BioNatural Healing College (BNHC)

Abstract: Nutrition science is fundamental to understanding how dietary choices impact health, disease prevention, and overall well-being. This paper explores the significance of nutrition science in daily life, emphasizing its role in maintaining health, preventing chronic diseases, and promoting mental health. By examining current research and dietary recommendations, this paper highlights the critical importance of informed nutritional choices for individual and public health.

Keywords: Nutrition science, health maintenance, chronic disease prevention, mental health, dietary choices

Introduction: Nutrition science examines the relationship between diet and health, providing insights into how nutrients and dietary patterns influence bodily functions and disease outcomes. Understanding these principles is essential for making informed dietary choices that promote health and prevent disease. A well-balanced diet consists of various food groups, including fruits, vegetables, whole grains, proteins, and dairy products, each contributing uniquely to bodily functions.

- **Carbohydrates:** Primary energy sources found in foods like grains, fruits, and vegetables.
- **Proteins:** Essential for muscle synthesis and cellular repair, sourced from lean meats, fish, legumes, and plant-based alternatives.
- **Fats:** Necessary for brain function and hormone production, with healthy fats present in nuts, seeds, and olive oil.
- **Vitamins and Minerals:** Support various bodily functions, including immune response and bone health, and are abundant in fruits, vegetables, and dairy products.
- **Water:** Essential vital liquid of life to carry all the above food groups in the body to regulate and maintain the normal function of all biological processes.

Despite the wealth of knowledge about proper nutrition, many individuals struggle with dietary imbalances due to socioeconomic, cultural, and environmental factors. Understanding how these elements influence dietary behaviors is crucial for developing effective nutrition programs and public health initiatives.

Role of Nutrition in Health Maintenance: A balanced diet supplies essential nutrients—carbohydrates, proteins, fats, vitamins, and minerals—necessary for energy production, tissue repair, and immune function. Proper nutrition supports metabolic processes and ensures the body functions efficiently. For instance, adequate intake of calcium and vitamin D is crucial for bone health, reducing the risk of osteoporosis. Consuming a variety of fruits and vegetables provides antioxidants that protect against cellular damage. Nutritional deficiencies can lead to various health issues, such as anemia from inadequate iron intake or scurvy due to insufficient vitamin C. Dietary fiber plays an essential role in digestive health, as it promotes gut motility and prevents conditions such as constipation and diverticulosis. The consumption of whole grains, legumes, and fresh produce contributes to digestive efficiency and a diverse gut microbiome, which is essential for immune function and inflammation control. Additionally, protein intake is critical for muscle synthesis and repair. Dietary protein sources, including lean meats, fish, dairy, legumes, and plant-based alternatives, help maintain muscle mass, especially in aging populations. Essential fatty acids, particularly omega-3 and omega-6, are vital for brain function and cardiovascular health, highlighting the necessity of consuming balanced sources of fats. **Prevention of Chronic Diseases:** Diet plays a pivotal role in the prevention and management of chronic diseases. Poor dietary habits, such as high consumption of ultra-processed foods, are linked to obesity, type 2 diabetes, and cardiovascular diseases. A recent study by Hall et al. (2019) found that participants consumed significantly more calories and gained weight when following an ultra-processed diet compared to a less-processed diet.

Conversely, diets rich in whole grains, lean proteins, healthy fats, and micronutrients are associated with a reduced risk of these diseases. The Mediterranean diet, which emphasizes fresh vegetables, whole grains, olive oil, nuts, and lean proteins, has been linked to lower rates of heart disease and cognitive decline. Similarly, the DASH (Dietary Approaches to Stop Hypertension) diet has been proven effective in reducing blood pressure and improving overall cardiovascular health. These dietary patterns highlight the importance of making informed food choices to support long-term well-being. Obesity is one of the most pressing public health concerns worldwide. The combination of excessive calorie intake, poor food quality, and sedentary lifestyles contributes to obesity-related illnesses such as metabolic syndrome, fatty liver disease, and certain cancers. Strategies such as calorie control, portion management, and mindful eating play a role in obesity prevention. **Impact of Nutrition on Mental Health:** Emerging evidence suggests a direct relationship between nutrition and mental well-being. Diets high in omega-3 fatty acids, vitamins, and antioxidants are associated with reduced risks of depression and cognitive decline. For example, consuming dairy products as part of a balanced diet can help maintain strong bones and promote mobility, which is essential for graceful aging. Additionally, maintaining gut health through a fiber-rich diet and probiotics can positively impact mental health. These findings underscore the importance of dietary patterns in mental health. **The Importance of Hydration:** Water is vital for various bodily functions, including digestion, nutrient transport, and temperature regulation. Adequate hydration is necessary for maintaining cognitive performance, digestion, and cardiovascular health. Dehydration can lead to impaired cognitive function, mood changes, and decreased physical performance. Therefore, regular water intake is essential for overall health.

Nutrition across Different Life Stages: Nutritional requirements vary across different age groups. Infants and children require essential nutrients for growth and development, whereas older adults need specific dietary modifications to prevent age-related conditions such as osteoporosis and sarcopenia. For instance, older adults may require increased protein intake to preserve muscle mass and strength. Understanding these variations is crucial for promoting health across the lifespan. Nutrition science informs public health policies aimed at improving population health. Government initiatives, such as dietary guidelines and nutrition labeling, aim to encourage healthier food choices. Educational programs that promote healthy eating habits can lead to a reduction in healthcare costs and an increase in life expectancy. For example, public awareness campaigns about the dangers of excessive sugar consumption have led to a decline in sugary drink sales in some regions. Advancements in nutrition science have led to the concept of personalized nutrition, where dietary recommendations are tailored to an individual's genetic makeup, lifestyle, and health status. This approach recognizes that a one-size-fits-all diet is not effective for everyone and aims to optimize health outcomes on an individual level. Future research in this field aims to refine dietary interventions for optimal health outcomes. **Conclusion:** Nutrition science is integral to daily life, influencing physical health, mental well-being, and disease prevention. By understanding and applying its principles, individuals can lead healthier lives and contribute to broader public health goals. Incorporating a variety of nutrient-dense foods into meals, limiting processed food intake, and staying hydrated are practical steps toward better health.

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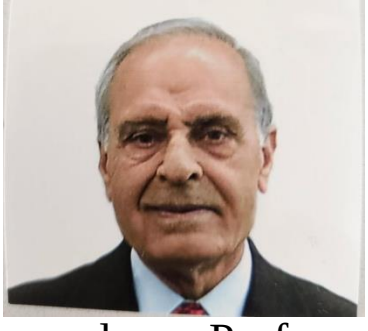
BNHC is delighted to welcome our new Executive Academic Advisor and faculty members: Prof. Dr. Mohammad Nabi Aslamy, Dr. Rebecca Michael, and Mrs. Lima Naderi. We sincerely appreciate their contributions and support in advancing our academic mission.

Professional Biography: Prof. Dr. Mohammad Nabi Aslamy



Prof. Dr. Mohammad Nabi Aslamy is a distinguished academic, researcher, and professional with over 40 years of expertise in agriculture, agribusiness, and education. His extensive career spans agricultural research, plant production, training, business management, and project leadership. Dr. Aslamy has served as a Professor at Kabul University, Afghanistan, a Faculty Associate in the Department of Agriculture at Arizona State University, and an Exchange Professor and Researcher at the University of Nebraska, Lincoln. His leadership roles include Senior Agriculture and Agribusiness Program Manager, Director, Chief of Party (COP), and Deputy Chief of Party (DCOP), demonstrating his depth of experience in agricultural production, research, and business management. He holds a Postdoctoral Fellowship in Agronomy Research (Soybeans) from the University of Nebraska, Lincoln, a Ph.D. in Agronomy (Crop Production and Physiology) from the University of Arizona, Tucson, an M.S. in Botany and Range Management from the University of Wyoming, Laramie, and a B.S. in General Agriculture (Plant and Animal Science) from Kabul University, Afghanistan (1959-1965). Beyond academia, Dr. Aslamy has actively contributed to community development, serving as Chairman of the Charter School Education Committee and a Community Charity Volunteer at the Denver-North Islamic Center (2010-2021). Currently residing with his family and grandchildren in Concord, California, BioNatural Healing College (BNHC) is honored to have Prof. Dr. Aslamy as its Executive Academic Advisor. His vast knowledge and experience in crop production, research, teaching, training, and business management continue to drive BNHC's mission of advancing sustainable agriculture, environmental health, and holistic education.

Professional Biography Dr. Rebecca Michael also as a Faculty Member at BioNatural Healing College (BNHC)

Dr. Rebecca Michael used to own the Tularosa Center for Holistic Medicine in Tularosa New Mexico State.
She is a board-certified and licensed Naturopathic Doctor (ND) and HMD Homeopathic Medical Doctor.
She earned a double doctorate in Medicine and Forensic Science Psychology.
She is a Navy veteran.
Additionally, she is the author of books.
This is her first Children's book, even though she graduated from the Children's Institute of Literature and Long Ridge Writers' Group in Connecticut. She has written: Passage by Night 2010, Beyond Times Toll2011, The Starfire Mission 2012, Bodie: A Portal to the Past 2017, The Amulet of St. Christopher 2018, El Paso Book 3 2018, Rachel's Chance 2019, and finally Taco in 2022. Background Education: Cornell University lab in Eastport Long Island and employed by the college. California Coast University both degrees. The Doctorate in Holistic Medicine was completed in 2019 from the Kingdom College of Natural Health. Dr. Michael has worked in Education for 20 years and Forensic Science, currently working for the RDPD as an Evidence Technician, Crime Scene Analyst I, and volunteer firefighter for RDFD. Dr. Michael is a local native of Tularosa New Mexico with ties to El Paso Texas, Ruidoso Downs New Mexico, and Albuquerque New Mexico. She rescues animals in her spare time and helps the Tularosa Animal Shelter locally. BioNatural Healing College (BNHC) is delighted to have Dr. Rebecca Michael as a faculty member.

Professional Biography Mrs. Lima Naderi Student Academic Advisor/Instructor at BioNatural Healing College (BNHC)

Mrs. Lima Naderi is a dedicated case manager, interpreter, and agricultural specialist with a diverse professional background. Born in Kabul, Afghanistan, she completed her early education at Paghman Girls High School before pursuing higher studies in agriculture. She holds a Master's degree in Horticulture from CCS Haryana University in India and a Bachelor's degree in Horticulture from Kabul University. With extensive expertise in agriculture, Lima has worked on various initiatives focusing on raining on kitchen gardening, greenhouse management, vegetable cultivation, post-harvest sustainable farming, nutrition, and women's empowerment in agriculture. She has provided techniques and poultry farming. Her experience includes working with organizations such as Women for Women International and BRAC Afghanistan, where she educated communities— especially women—on improving food security and self-sufficient farming practices. She also participated in agricultural surveys, data collection, and research on the best farming techniques suited for different regions. Additionally, Lima has experience in agricultural extension services, where she assisted in implementing farming programs, distributing essential resources like seeds and tools, and supporting small-scale farmers in adopting modern cultivation methods. Currently working as a Case Manager at FIRM in Fresno, California, Lima assists refugee families in their resettlement journey, helping them achieve self-sufficiency. She has also worked as an interpreter for Lutheran Social Services, supporting Dari- and Pashto-speaking communities in accessing essential services. Fluent in Dari, Pashto, and English, Lima is skilled in cross-cultural communication. She also has experience in software testing and other computer-related tasks, adding to her versatility in different fields. Passionate about community empowerment, she strives to support vulnerable populations through education, advocacy, and resource development. Mrs. Lima resides with her family and two lovely children in Fresno, California. BioNatural Healing College (BNHC) is delighted to have Mrs. Lima Naderi as a Student Academic Advisor.

BioNatural Healing College (BNHC) sincerely appreciates your generous contribution towards the Gift of Education. Your donation plays a pivotal role in supporting scholarships for students in need, empowering them to achieve their educational aspirations. We extend our deepest gratitude for your generosity and commitment to education.

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Thank you once again for your support and encouragement.

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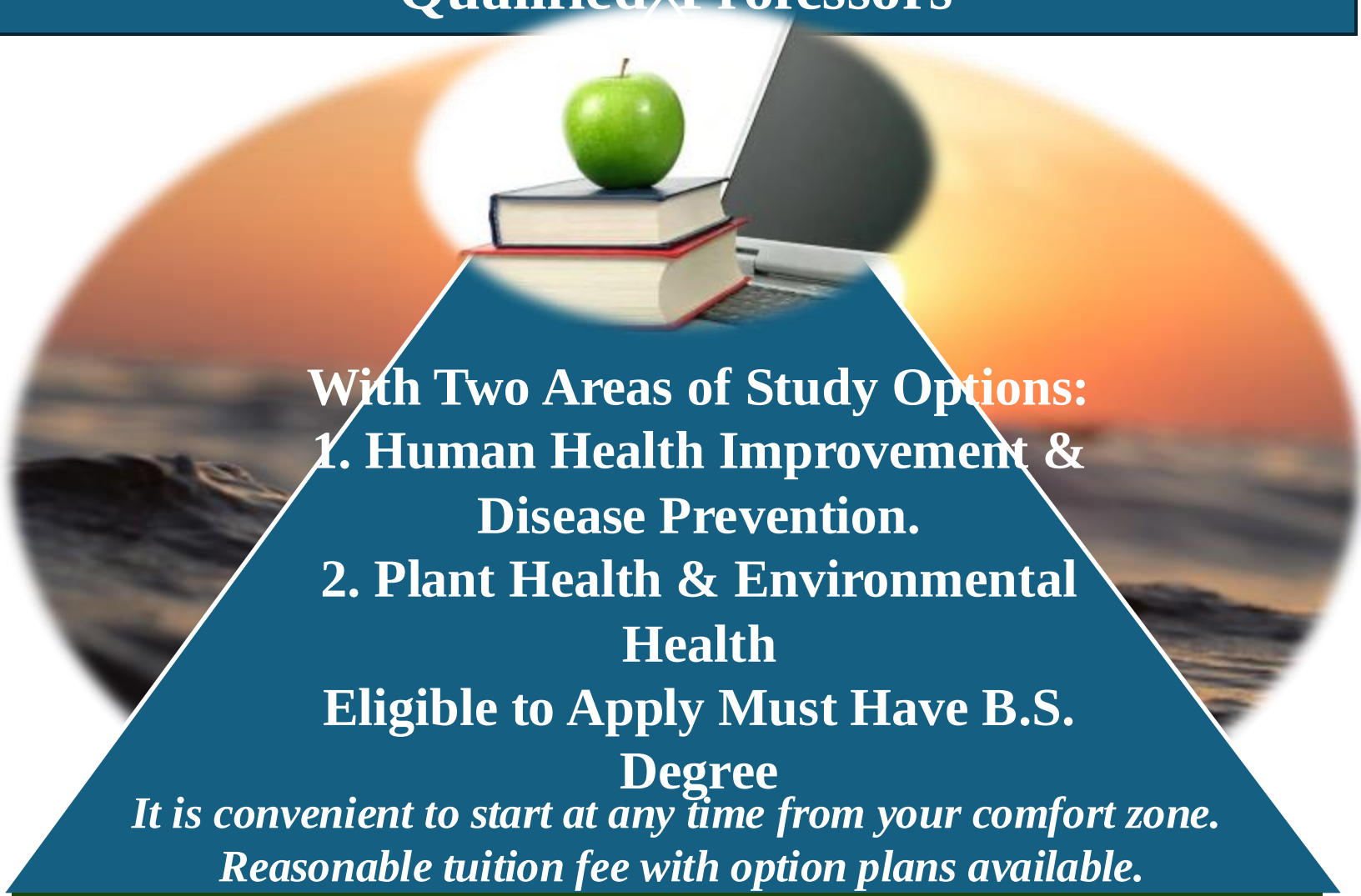

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Vision: The faculty, staff, and management team of BioNatural Healing College (BNHC) are passionately committed to providing the best teaching possible in this field. We seek to encourage, motivate, and explain the importance of this field to prospective 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 (BNHC), based in California, is dedicated to providing high-quality online education, and vocational online distance learning to students worldwide. As a legally recognized institution, it is authorized to operate by the State of California's Bureau for Private Postsecondary Education, by the established educational code. While BioNatural Healing College is not accredited by the United States Department of Education, BNHC is a member of the Agronomy Society of America, Crop Science Society of America, Soil Science Society of America and American Holistic Health Association (AHHA), reflecting its commitment to a holistic and ecological approach to human health and environmental health improvement education.