

Nutritional Biochemistry in Ayurveda and Pharmaceutical Drugs

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Abstract

Nutritional biochemistry is one of the academic foundations that make up nutritional sciences, a discipline that encompasses the knowledge of nutrients and other food components with emphasis on their range of function and influence on mammalian physiology, health, and behavior. Nutritional biochemistry is a sub discipline that is made up of the core knowledge, concepts, and methodology related to the chemical properties of nutrients and other dietary constituents and to their biochemical, metabolic, physiological, and epigenetic functions. A primary focus of research in nutritional biochemistry is the scientific establishment of optimal dietary intakes for every nutrient and food component throughout the life cycle.

Keywords: Nutritional biochemistry; Health; Dietary

Introduction

Nutritional biochemistry is an integrative science whose foundation is derived from knowledge of other biological, chemical, and physical sciences, but it is distinguished in its application of this knowledge to understanding the interactive relationships among diet, health, and disease susceptibility. For example, nutritional bio-chemistry is rooted in analytical methodology that permits the purification of individual nutrients and the determination of their structures, as well as in classical biochemical approaches that identify metabolic pathways and elucidate the role of dietary components in regulating metabolism and gene expression. Additionally, human genetic studies of inherited inborn errors of metabolism, such as phenylketonuria, have contributed to core nutritional biochemical knowledge by revealing important interrelationships among nutrition, metabolism, and genotype and their interactions during normal and abnormal human development.

study of genome–nutrient interactions and includes the role of nutrients and dietary components in regulating genome structure, expression, and stability, and the role of genetic variation on individual nutrient requirements. Nutritional metabolomics is the study of metabolic pathways and networks and includes

NUTRITIONAL BIOCHEMISTRY AND USES OF SOME COMMON PLANTS

Medicinal plant extracts have been widely recognized for being effective in traditional and modern medicine. At the beginning of the 21st century, 11% of the 252 medications considered essential by the WHO were all from flowering plants. Medicines such as morphine, codeine, and quinine have plant-based constituents. Although factory-made medications have unquestionably become significant to humans, it is reassuring to know that nature is with us, and these herbs are often available to complement good health practices. Herbal teas contain polyphenols which are soluble and have astringency believed to possess medicinal characteristics. Ayurveda system makes use of pomegranate and its peel rich in polyphenols for therapeutic applications. Common medicinal

Herbs currently used worldwide for medicinal.

Grape-seed (*Vitis vinifera*) extract:

For decades, grape-seed extracts which are rich in proanthocyanidins are available as liquid, tablets, or capsules, and have been acknowledged and much-admired for their antioxidant activities. Grape-seed extract

has medicinal benefits, such as reducing the symptoms associated with poor circulation within veins in legs and lowering bad cholesterol; low density lipoprotein (LDL). Recent studies have confirmed that steady intake of grape-seed extracts has anticancer/anti carcinogenic outcome and appears to stop the growth of cancer

Garlic (*Allium sativum*)

Garlic has been widely used for lowering blood pressure and reducing cholesterol levels. It contains phytochemicals such as allicin, flavonoids, atone, saponins, vinylthiols, etc., which have various health benefits. Garlic has antimicrobial effects. Some studies indicated that it might cause a little decrease in LDL cholesterol and total cholesterol levels. But results of studies on cholesterol-lowering effects of garlic have been managed to confer positive effects, according to FDA. Currently, studies are looking into possible role of *Allium sativum* in cancer prevention. It is safe, but should never be used along with warfarin (an anticoagulant), as huge quantities of garlic could have effects on clotting.

Ginger (*Zingier officinale*):

Ginger is popularly used globally; whether as spice in foods, or medicine for modern and traditional purposes, the high demand for the medicinal plant worldwide has been unswerving all through history. Ginger is used for many food or medicine items, including vegetables, pickles, alcoholic beverages, candy, and soda. Research shows that ginger is effective in relieving nausea due to pregnancy or chemotherapy. Some researchers have suggested that ginger can help boost the immune system against viral infection such flu. Ginger contains high amounts of gingerol, a phytochemical with powerful antioxidant and anti-inflammatory properties. About 1 to 1.5 g of ginger alone can help prevent many types of nausea, including chemotherapy-related nausea, sea sickness, morning sickness, and nausea following

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surgery. Ginger seems very effective against menstrual pain when consumed at the start of menstrual period. Ginger is known to decrease blood sugar level as well as improve many risk factors of heart disease in Type 2 diabetes patients. Some studies indicate ginger is effective at decreasing the osteoarthritis symptoms. Reported side effects usually include heartburn, bloating, gas, etc.

Holy Basil (Tulsi):

Holy basil (*Ocimum tenuiflorum*), also known as tulsi, is a green leafy plant native to Southeast Asia. Historically, it has been applied in Indian medicines for treating numerous health conditions, including eye diseases and ringworms. Many parts of tulsi plant are used for treating different health conditions: the seeds and leaves, together with black pepper, for treating malaria; its fresh flowers for treating bronchitis; the whole plant for nausea, vomiting, and diarrhea; alcohol extracts for eye diseases and stomach ulcers; essential oils produced from its leaves for insect bites; its ointment and pill forms for eczema treatment. Holy basil has antianxiety and antidepressant properties that are likened to antidepressant drugs. Studies indicated that it may help individuals become more social with less anxiousness.

Lavender:

A genus species in Lamiaceae is an aromatic, purple flower with anti-anxiety properties. It has been shown to have soothing effect in

one study involving those with dental problems, whereas a different study established it directly impact cognitive performance and mood. Lavender also has commendable sedative functions, which help individuals get the desired sleep. Recently, it was reported that lavender has anti-inflammatory benefits. It is effective even when diluted and used on skin or in aromatherapy. Lavender may be beneficial for: anxiety, migraine, stress, and blood pressure. It can cause skin irritation.

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