

## 1. Details of Module and its structure

Module Detail	
Subject Name	Food, Nutrition for Healthy Living
Course Name	Food, Nutrition for Healthy Living
Module Name/Title	Medicinal Properties of the Food Ingredients
Module Id	FNHL_101019
Pre-requisites	General knowledge about Medicinal Properties of the Food Ingredients
Objectives	After going through this lesson, the learners will be able to understand the following : <ol style="list-style-type: none"><li>1. Hippocrates</li><li>2. Folk remedies used in certain health conditions</li><li>3. Precautions while preparing these preparations at home</li></ol>
Keywords	Hippocrates, Amla, Aloe vera, Almond, Butter, Curry leaves, Coriander, Flax seeds, Pregnancy, Lactation, Anaemia, Menstruation, Cold and cough, Conjunctivitis, Constipation

## 2. Development Team

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***“Let your food be your medicine, and your medicine be your food.”***

### 1. Hippocrates

Since time immemorial folk remedies and healing tales are popular around the world. World Health Organization (WHO) has estimated that 80% of the world population relies on traditional medicines to treat and cure many health problems. Remember the time when you were given haldi ka doodh to heal wounds; rock salt with lemon juice to alleviate stomach pain; adrak ki chai in winters. Gond ke laddu is another popular food preparation given to new mother after delivery of the baby for speedy recovery and regain strength. These may be popular as “Dadi ma ke nuskhe” or “gharelu nuskhe”. Many of them are linked with Ayurvedic wisdom and are backed by scientific evidence. However, folk remedies should be used with precautions with regard to its usage. Proper diagnosis of the health problem, age appropriate dose, season and many other factors may influence their usage. Innumerable formulations had been proposed for learners and practitioners in ancient scriptures such as Charaka samhita (treatise on Ayurvedic system on health and disease); Egyptian scrolls of 1550 BC written by Ebers Papyrus and Materia Medica written by Greek Pedanius Dioscorides.

Since ages humans are often inflected with infectious diseases due to attack of bacteria, fungi, virus and parasites. They have also suffered aches and pain and discomforts in digestive, respiratory, cardiovascular, nervous and endocrine systems. Infections and diseases have taxed their immunity. Though human body has its own defense system but also need external support through food and medicine to protect their health and prevent from diseases. Plants have always rescued human beings and provided them the strength to fight varied diseases. In this lesson we will learn how plants help to fight diseases.

Plants possess countless compounds which prevent the damages in the body as well as progression of the diseases. Plants primarily contain two types of compounds such as primary metabolites and secondary metabolites. Primary metabolites nourish the body with basic nutrients such as protein, fats, carbohydrates, vitamins, minerals. Secondary metabolites serve as a defense system against herbivores and microbes. These defensive compounds are being used to protect our bodies from

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infections and diseases owing to the presence of numerous compounds having medicinal properties. Secondary metabolites include polyphenols, carotenoids, terpenes, alkaloids, essential oils etc and are widely distributed in plant kingdom.

Fruits like pineapple, grapes, apple, pear, cherries and berries; vegetables like green leafy vegetables, brinjal, tomato; spices and herbs like clove, cinnamon, bay leaves, basil, coriander, peppermint, rosemary; cereals like wheat, oats, barley and beverages like green tea, red wine possess abundance of bio active compounds which render them colour, flavour, aroma and numerous medicinal properties. Thus these foods are highly beneficial in managing many communicable and non-communicable diseases. These foods are also popularly referred as “special foods” or “super foods” or “healing foods”. Some of them are being used in special health conditions such as pregnancy, lactation, growth and development of young children and adolescent girls and preservation of youth and for longevity. Foods are also used in many folk remedies in numerous common health problems such as headaches, stomach pain, nausea, fever, cold and cough including hypertension, diabetes and joint pain.

Traditional folk medicines are intimately connected to agriculture production, socio-cultural, political, ecological and spiritual life of people. Some health professionals use them diligently to treat or cure many ailments including life-threatening diseases. Rising awareness of them and scientific deconstruction of them made intrigued their use in various nutraceutical pharmaceutical formulations. Let us learn some of the therapeutic use of some commonly consumed food ingredients used in folk medicines. They are as follows:

**Amla** (*Phyllanthus emblica*): Amla fruit is popularly known as amalki or Indian gooseberry and traditionally being used in myriad of health conditions including hair growth, immunity and longevity. It is a richest source of vitamin C and also contain good amount of many amino acids and minerals. It is a very good antioxidant and protects our body cell from free radical damage and also effective in respiratory disorders, diabetes etc. Though vitamin C is a heat sensitive but in amla it is heat stable due to the presence of tannins. It suggests that vitamin C is available from lemon tea also.

**Aloe vera** (*Aloe Barbadensis*): Aloevera is a wild plant which possesses the gel in its pith. Aloevera gel demonstrates anti-inflammatory property due to which it heals the itchiness, rashes, cuts, burns, and sprains. It contains many essential and non-essential amino acids, polysaccharides,

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vitamins, saponins, sterols and enzymes. It boosts immunity and prevents water accumulation in the body thus helpful in edema. It also finds its use in cosmetics owing to its cleaning, soothing and nourishing properties.

**Ajwain** (*Trachyspermum ammi*): **Ajwain** is a household name for reducing flatulence (gas) and indigestion. It is also commonly used post delivery to reduce pain and infection. It is very strong antibiotic, antibacterial and anti-inflammatory due to the presence of thymol compound. It also contains many other polyphenols, minerals and vitamins. It is also found beneficial for red blood cell formation, blood pressure regulation and mitigating joint pain and tooth and throat infections.

**Almond** (*Prunus dulcis*) - Almonds are rich in fatty acids, vitamin E, magnesium and folic acid. It is consumed by many people on regular basis for its role in improving the brain functions including memory and body strength. Almond oil is found useful maintain health of the skin, liver, muscles and heart. Folk remedies use almonds for the treatment of cold, cough, sores, spasm, gingivitis and certain tumors. Almonds are bitter also due to the presence of prussic acid. Bitter almonds can be used in cosmetic industry and should be avoided for human consumption.

**Apple** (*Malus sylvestris*) - An apple a day is an age old adage which signifies its therapeutic value for heart patients and diabetic persons. It is low in calories and high in soluble fiber and also contains trace elements like selenium, chromium, boron, molybdenum which helps to keep circulatory and nervous system healthy. Skin of apple is precious due to the presence of ursolic acid, quercetin and other compounds. Quercetin improves health of the neurons thus support brain functions. Ursolic acid stimulates muscle growth so a great support for sports persons and overweight people for increased energy expenditure. Malic acid in apple fruit is helpful in reducing uric acid to prevent gout. Natural wax coating over the skin of whole apple is often layered by pesticides; hence apples should be washed by dipping apples in warm water for few minutes and dried with clean cloth.

**Banana** (*Musa paradisiacal*): Banana fruit is rich in certain carbohydrates, potassium, vitamin B6 which relaxes the muscles and nerve cells. Thus banana is useful in regulating the blood pressure, mood and electrolyte balance. Flavonoids in banana enhance the activity of antioxidant enzymes produced by the body. Raw banana is also edible and contains resistant starch which helps in managing diabetes, cholesterol and digestive system.

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**Bay leaves** (*Laurus nobilis*): Bay leaves are used as spice to flavour many traditional meat dishes, stews and rice preparations in different cuisines of the world. Antioxidant, anti-inflammatory, antifungal and antiviral properties of bay leaves help to suppress fungal and bacterial infections and gastrointestinal problems.

**Basil** (*Ocimum basilicum*) – Basil is a holy plant and various parts of plant are used in many ailments. It possesses wide range of chemical compounds such as linalool and eugenol which are responsible to behave as antidiabetic, antifungal, antimicrobial, analgesic and antispasmodic. Basil leaves are frequently used for mental clarity, anxiety, acidity, fever and indigestion. Microbes do not hover when basil leaves are placed over sacred food. It is said that basil leaves should not be chewed because it may remove the tooth enamel due to the presence of methyl acetate in it.

**Green cardamom** (*Elettaria cardamomum*) – Cardamom flavour fascinates most people even when used in small amount in sweet and savoury dishes. It is rich in manganese, potassium, magnesium and vitamins like choline. Choline helps to beat the stress and anxiety and support functioning of nerves and other vital organs of the body. It is rich in volatile compounds in which cineol is one of them which makes the cardamom a potent antibacterial and antiseptic. Thus cardamom is good for bad breath and other infections. Black cardamom is also available and used in many Ayurvedic preparations for many ailments.

**Butter** – Butter contains healthy saturated fats rich in short chain fatty acid (SCFA) particularly butyric acid. Butyric acid aids in digestion, calms inflammation, alters the composition of gut bacteria and improves overall gastrointestinal health. The gut health supports the brain health also. Butter can be used to improve the texture of the skin and nourish the joints.

**Coconut** (*Cocos nucifera*) – Coconut is a favorite ingredient in all south Indian dishes. It is used as coconut water, coconut milk, dry coconut, and coconut oil. It is used in food, cosmetics and some pharmaceutical preparations. Coconut oil is an excellent moisturizer and softer for skin and support hair growth. It also contains healthy saturated fats due to presence of lauric acid due to which it is found useful in reducing cholesterol. Its anti-microbial and anti-fungal is often used to improve gut flora and support liver and thyroid health.

**Curry leaves** (*Murraya koenigii*) - Curry leaves are regular seasoning in Indian cookery for its distinct aroma. It is rich in calcium, folic acid and carotenes (precursor of vitamin A), lutein,

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tocopherol (form of vitamin E) and many other bioactive components which make it useful in anemia, cholesterol reducing activities etc. Leaves have shown anti-oxidative, antimicrobial, antibacterial properties and are traditionally being used in many folk remedies.

<https://easyayurveda.com/2017/01/15/curry-leaves-remedies/>

**Coriander** (*Coriandrum sativum*) – Coriander is an essential ingredient in Indian cuisine as fresh leaves and coriander seed powder. Coriander leaves are rich in vitamin C, carotenes, potassium, and molybdenum and also contain good amount of insoluble fiber and numerous flavonoids. It is antibacterial; antifungal hence valued in stomach ailments and also used detoxification of liver and kidney.

**Cumin seed** (*Cuminum cyminum*): Cumin seed or jeera is a spice used in seasoning and roasted jeera in sprinkling. It is highly valued during lactation for more milk production due to its estrogenic property. It is favorite herbal medicine for acidity. Its flavonoids demonstrate hypoglycemic activity and antioxidant property. Antioxidants help to counteract oxidative stress. (Oxidative stress is caused by the over production of free radicals which are not adequately removed from the body leading to accelerated aging and often responsible for many degenerative and inflammatory diseases like obesity, atherosclerosis, arthritis).

<http://www.iosrjournals.org/iosr-jpbs/papers/Vol5-issue1/D0511416.pdf?id=4800>

**Fennel seeds** (*Foeniculum vulgare*) - Fennel seeds are frequently eaten after meal as mouth freshener and digestive aid. It regulates blood pressure and reduces water retention in the body due to its diuretic nature. The anethole and estragole contribute to its antispasmodic and anti-inflammatory properties.

**Fenugreek** (*Trigonella foenum graecum*) Fenugreek or methi is used in multipurpose way using its green leaves and dry seeds in food and medicine. Dry leaves of “Kasuri” methi are distinctively used in many cuisines. Fresh leaves rich in vitamin C, carotenes, niacin, iron, calcium, zinc and fibre. Methi seeds contain good amount of protein, gum and mucilages, saponins, alkaloids and volatile content. Its medicinal qualities are reflected in its antidiabetic, antioxidant and antibacterial behaviour. They are also used as food stabilizers, adhesives and emulsifying agents in some food industries.

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<https://www.omicsonline.org/a-review-on-the-functional-properties-nutritional-content-medicinal-utilization-and-potential-application-of-fenugreek-2157-7110.1000181.php?aid=8944>

**Flax seeds** (*Linum usitatissimum*) - Flax seed (alsi) is rich source of a type of omega-3, i.e. alpha linolenic acid (or ALA), soluble fibre, lignan (gel forming substance), protein and many polyphenols. Owing to its bioactive components, it has recently gained attention for its effectiveness in constipation, obesity, diabetes, lowering cholesterol and triglycerides, arthritis and joint pain and also in menopausal symptoms.

[https://www.researchgate.net/publication/305280851\\_Health\\_Benefits\\_and\\_Nutritional\\_Value\\_of\\_Flaxseed-a\\_Review](https://www.researchgate.net/publication/305280851_Health_Benefits_and_Nutritional_Value_of_Flaxseed-a_Review)

**Lemon** (*Citrus limon*):Lemon water is a popular good morning drink. It suggests its numerous health benefits. It boosts the immune system and also the absorption of iron owing to high vitamin C content. Its rind is full of bioflavonoids particularly rutin and hesperidin which helps to improve the blood flow. Lemon juice helps to prevent the growth and multiplication of pathogens. Its role in formation of collagen protects the joints and reduces the inflammation. It also helps to balance the pH level in the body. In spite of its acidic taste, it leaves alkaline ash in the body thus useful in acidity and other digestive disorder.

**Moringa** (*Moringa oleifera*) - Moringa (drumstick) is a power house of nutritional and medicinal properties and also used in nutraceutical formulations. Leaves and fruits are commonly consumed and loaded with vitamin C, carotenoids, folic acid, potassium, iron, magnesium and calcium and a wide range of phytochemicals which make drumsticks useful in combating anemia and other nutritional deficiencies. It also exhibits antibacterial, anti-inflammatory, antispasmodic and hypoglycemic, hypotensive and hypocholesterolemic properties thus effective in cardiovascular and other diseases.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5033775/> Moringa

**Garlic** (*Allium sativum*) – Garlic is a common ingredient in most kitchens and is considered therapeutic agent. It is restricted in some homes due to traditional and cultural reasons. It has very strong aroma and flavour due to the presence of sulphur compound called allicin. This compound makes the garlic antibacterial and antiviral; hence it is considered an ingredient to expel toxin and

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pathogens away from the body and keeps the digestive health in good condition. It is also supportive to reduce infections, high cholesterol and heart diseases.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4103721/> garlic

**Ginger (*Zingiber officinale*) – Ginger** (adrak) has well known therapeutic role in health management since ancient time. It has demonstrated anti-inflammatory and antioxidant properties which has sustained its use in reducing aches and pains including joint pain in arthritis. It is an effective remedy in nausea during travel and in pregnant women. Ginger also has antifungal, antiviral and antimucolytic properties which make it useful in respiratory problems as it helps to loosen the mucus due to the presence of gingerol and shagol compounds in ginger.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4106649/> ginger

**Peppermint (*Mentha arvensis*):** Peppermint leaves are popular in chutney, jaljeera and other ways and instantly releases its aroma and freshness. It is a very common ingredient in folk medicine for indigestion, gas, cramps, nausea and diarrhea due to its antimicrobial, antibacterial, antispasmodic properties due to the presence of menthol. It is also found effective in pain owing to many volatile compounds present in its essential oil.

<http://www.acmicrob.com/microbiology/peppermint-and-its-functionality-a-review.php?aid=19955>

**peppermint**

## **2. Let us also talk about some Folk remedies used in certain health conditions:**

### **Pregnancy:**

There are many myths in different communities with regard to food to be or not to be consumed during pregnancy. Women often crave for sour foods like unripe mango, pickle and people consider it a sign of pregnancy. Women may also crave for pica (irresistible craving for non-edible items like mud, paint, paper etc.) indicating some deficiency or anemia. Morning sickness, nausea, vomiting, tiredness, urinary problem, constipation, gas, edema are common in this stage due to the physical and hormonal changes. These are often managed by home remedies which may vary from community to community.

- Chewing ginger bits prevents morning sickness and nausea.



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### Lactation (breast feeding):

- In North India **Gond ladoos**, which are prepared using edible gum (gond) and other ingredients like wheat, ajwain, methi, millet, fennel and dry fruits are very popular after delivery for regaining strength and immunity in the body. Shatavari herb, cumin and garden cress seeds are used as galactogoues.
- Harira preparation which is made using fenugreek, ajwain, desi ghee and jaggery helps to ease joint pain and speedy recovery. It also helps to fight against infection and gas formation.
- Make wheat flour thin sheera or halwa with little desi ghee, jaggery and a pinch of dry ginger powder (sonth) is soothing and nourishing.

### Infancy:

- Licking of freshly prepared almond paste is a popular remedy for development of the brain in infants. It should be prepared by rubbing 1-2 soaked and peeled almonds on abrasive kitchen stone.
- Hing (asafoetida) solution is rubbed over navel in case of stomach pain in children. against vomiting breast milk. Seeds boiled in water are also given to the child for.

### Anaemia

- One must avoid tea, coffee along with iron rich foods rather consume vitamin C rich foods along with it e.g. do not eat dates with tea but you can mix lemon juice over it.
- Mix spinach, coriander, mint and betel leaves and grind fine to juice mix lemon juice and drink with salt and pepper.
- Make juice of beetroot and drink along with lemon juice in the morning. Beet can also be added in salads and soups.
- Consuming dried curry leaves powder with hot water or milk helps to cure anaemia.

### Acidity and gas:

- Pea size jaggery and 5-6 seeds of ajwain after each meal.
- Fennel seeds and mishri after each meal.
- Butter milk with roasted Ajwain, hing, black salt after meal.

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## **Cold and cough**

Sore throat may indicate the beginning of forthcoming cold or cough so care can be taken in the beginning by

- Boil 1 tea spoon of Ajwain, sonth, 4-5 black pepper and 2 cloves in 500 ml of water till half and add ½ cup jaggery and again boil for some time. Drink at bed time and 2-3 times a day to prevent onset of cold and cough.
- Mix salt and lukewarm water and gargle with it 2-3 times a day. Making sound during gargling may aggravate soreness.
- Boil 20 basil leaves, a pinch of each black pepper and ginger powder in 1 glass of water for 5-10 minutes. Drink warm with honey.
- For persistent cough, try mixing ½ tea spoon each of mustard powder and ginger powder in 1 tea spoon of honey.
- Inhale eucalyptus, pine and peppermint oil by putting few drops on tissue paper or handkerchief or in steaming water.

## **Viral fever**

- Boil 10 leaves of two types of basil in a cup of water into decoction. Drink 2-3 times a day for 5-7 days
- Boil 20 basil leaves, 4 grams of ginger and one teaspoon crushed black pepper in 250 ml water till half the quantity. Strain and drink it lukewarm. Sleep under sheet for 15 minutes. Sweating will bring down the body temperature.
- Make tea using basil leaves, fennel seeds and lemon grass in equal proportion.

## **Tooth ache**

- Gargle with salt water several times a day.
- Putting a swab soaked in 1-2 drops of clove or peppermint oil or 1-2 crushed cloves of garlic will reduce the pain sensitive and reduce the infection.

## **Cuts and injury**

- Rub aloe vera gel over the cut
- Clean the wound with juice of basil leaves

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## **Diarrhea**

- Homemade ORS solution
- Coconut water, lemon water with honey and salt
- Eat Simple rice and curd with salt

## **Constipation**

- $\frac{1}{2}$  tea spoon triphala churan +  $\frac{1}{2}$  tea spoon aloe vera juice + 1tea spoon wheat bran powder –  
Mix in 2 glasses of water and drink at night.

### **3. Precautions while preparing these preparations at home**

- Take healthy, organic and free from injury, plant material (leaves, fruit, see etc).
- Clean and wash material thoroughly
- Take clean utensil
- Take amount of raw material as prescribed