Performance of *Terminalia arjuna* as Dietary Interventions for Cardiovascular Disease

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Abstract

Due to habitual smoking, physical inactivity and unhygienic diets, cardiovascular diseases getting spread among the individuals of all ages. About 17 million people die (one-third of all deaths worldwide) each year because of cardiovascular diseases (CVDs). So, it is need of the hours to get rid of CVD by exploring proper dietary plan as bio-remedial measures for CVDs. In this context, today's scientists are focusing their attention on herbal treatment of CVDs. Bark of *Terminalia arjuna* is being used in the Indian subcontinent for anginal pain, hypertension (HTN), congestive heart failure, and dyslipidemia, based on the observations of ancient physicians for centuries. Arjuna is rich in Co-enzyme Q-10, phytoconstituents (Triterpenoids, β-sitosterol, flavonoids, and glycosides), lenolic acid, lenolic acid and arjunoids those have long been used in Ayurveda for treatment of hypertension and CVDs. Co-enzyme Q-10 is catalyst in the production and transportation of energy required for normal functioning of the organs. It also protects LDL cholesterol from damage through oxidation. Incidentally, the heart and the liver have the highest demand for Co Q-10 because of the nature of their function. Co Q-10 depletes gradually with aging and the heart muscles become weaker resulting in HTN and palpitations. Meanwhile, the LDL becomes too oxidized to function properly, so it builds up in the artery blocking the walls with further raise in blood pressure (BP). Supplementation of Co Q-10 is thus required to improve heart function and lower high BP. Long chain omega 3 fatty acids, such as alpha linolenic acid (ALA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), work synergistically with gamma linoleic acid (GLA), and other polyunsaturates and monounsaturates to balance the body's lipoprotein content and protect against LDL oxidation. So preventing excess LDL oxidation and oxidative radicals would not be complete without reviewing antioxidants. Triterpenoids and flavonoids are considered to be responsible for its beneficial antioxidant cardiovascular properties. About 70 percent alcoholic extract of *Terminalia arjuna* in a dose of 6 mg/kg of body weight significantly lowered blood pressure. This information suggest to compile a detailed review of *Terminalia arjuna* to highlight its multidimential benefits to cure CVDs as Herbal Traetment.

Key Words: Cardiovascular Disease, herbal treatment, *Terminalia arjuna*

Is Pure Ghee (Desi Ghee) lowers the risk of Cardiovascular Disease?

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Abstract

Presence of saturated fatty acids in Desi ghee is a question mark for its use by the patients suffering from CVD, obesity and hypercholesterolemia etc. This is mainly due to misunderstanding that the ghee comes from animal source rather than vegetable. Pure ghee is a clarified butter having monounsaturated fatty acids (MUFA), which is better than polyunsaturated fatty acid (PUFA) because, PUFA is found in Vegetable-based ghee and in other cheaper oils which are usually hydrogenated and have a high amount of trans-fats. In contrast, pure ghee with its natural (pleasant) flavor is free from trans fatty acids. Recent studies suggested that use of 1 to 2 tablespoons per day of Desi Ghee would help to lower the risk of cardiovascular disease because, it is extremely rich in antioxidants, conjugated linoleic acid (CLA) and fat soluble vitamins like A, E, D. Linoleic acid good for heart health and work synergistically with linolanic acid, and other polyunsaturates and monounsaturates to balance the body's lipoprotein content. Though Desi ghee has multiple benefits, you can consume it as per recommendation. It is rejuvenating, easy to digest and converted to energy easily. It has a high smoking point and a strong, appetizing aroma, and is free of harmful trans-fatty acids. It is good for nerves and the brain and reduces cholesterol since as it increases contribution of lipids for metabolism. Desi Ghee is healthy and important for Weight Loss. Due to unique short chained fatty acid structure, it breaks down fat (lipolytic). However, Desi Ghee has all the above benefits in its pure form meaning Home Made Pure Desi Ghee.

Key Words: Desi Ghee, Monounsaturated Fatty Acids, Cardiovascular Disease

A SYSTEMATIC AND COMPARATIVE STUDY ON THE NUTRITIONAL COMPONENTS AND ANTIOXIDANT ACTIVITIES IN THE FERMENTATION OF CHEONGGUKJANG USING *BACILLUS SUBTILIS* (KCTC 13241)

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ABSTRACT

Cheonggukjang (CKJ) is a Korean fermented soybean paste used in Korean cuisine. CKJ has been considered as more healthful than soybean in Korea. It can be prepared in 2 to 3 days by fermentation of whole cooked soybeans using rice straw or *Bacillus subtilis* (BS). To select the best soybean cultivar and the best ratio of concentration of BS for making functional CKJ, a comparison was made of the biological activities of four soybean cultivars in unfermented soybean (UFS) and CKJ. We divided this experiment into two parts, first analyze the cultivars and second different concentrations of BS for making CKJ. Changes in DPPH radical scavenging activity, ABTS assay, SOD-like activity, amino acids, and total phenolic and isoflavones were investigated. The levels of DPPH, ABTS, SOD-like activity and total phenolic increased in CKJ among all cultivars. The isoflavone and total amino acids showed the highest in CKJ prepared from *Aga #3*. The DPPH radical scavenging activity ranged from 59.1 to 70.91% in UFS and from 81.48 to 90.9% in CKJ. The ABTS radical scavenging activity ranged from 70.3 to 79.49% in UFS and 83.36 to 93.22% in CKJ. The total isoflavones decreased in CKJ and remained in the range of 188.04-785.99 µg/g. These results suggested that the improved antioxidant activity of CKJ in all cultivars might have occurred because of higher level aglycones and total phenolic achieved during fermentation. Moreover, CKJ prepared from *Aga #3* showed higher antioxidant

activity than the other cultivars. On the other hand, the levels of antioxidant activities, TPC and amino acids were maximum in CKJ prepared from 1% BS. CKJ prepared from 1% BS showed 94.24%, 86.03%, 5.99 mg/g, 12.86 mg/g, 10.01 mg/g and 7.43 mg/g DPPH radical scavenging activity, ABTS assay, TPC, minerals, protein and amino acids respectively in *Aga #3*. CKJ prepared from 7% BS revealed the lowest value of functional and biochemical capacity. In conclusion, the findings exhibited that CKJ is the source of bioactive natural antioxidants and nutritional components. It can be considered in the future for the commercial production of functional foods and used in pharmaceutical industry.
Keywords: Cheonggukjang; fermentation; soybean; isoflavones; antioxidant activity; Functional food;

Ethno medical scenario of herbs: A review

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Abstract

Herbs and spices are significant source in treating different maladies and considered as "safe" when compared with regular drug therapy. They not only impart color, taste and flavor to food items, but also add phytonutrients which augment the health of consumers. Herbal plants that are most importantly used as fresh or in supplemented form are thyme, basil, rosemary, coriander, fenugreek, bay leaf, mint and curry leaf. Coriander contains carbohydrates, proteins, vitamin A and vitamin C. It improves appetite and reduces bloating. Fenugreek has vitamins, minerals as well as proteins. Bay leaf with antioxidant potential prevents various skin diseases and infections. Another important herb; thyme is considered as a rich source of iron along with vitamins and minerals. Essential oil of thyme consists of 30-52% antibacterial compound i.e. thymol; i.e. the main ingredient of breath fresheners and antiseptic dressings. Rosemary, a rich source of vitamin B group and calcium as well as assumed to recover memory problems. Herbs and spices because of their therapeutic potential with beneficial components; including nutraceuticals, antioxidants and functional ingredients are the limelight of this article.

Key words:

Herbal Plants, Nutraceuticals, Functional Ingredients, Human Health

Anticancer mechanism of plant essential oils: An overview

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Abstract

Natural plant products with chemical components as anticancer agents are one of the fastest mounting areas of research these days. In the last epoch, essential oils have proved to be utilized in cancer therapy and the present review article is a challenge to document and collect the investigations signifying essential oils and their respective components. This review also illustrates the mechanism of action of different essential oils and their components as chemopreventive in the treatment of various types of cancers. Essential oils and their ingredients act by following different pathways and mechanisms which involve; cell cycle arrest, apoptosis, DNA modulation, estrogenic, immunomodulatory and antiproliferative activity in cancer cell lines. The effect of plant essential oils on tumor suppressor protein (p53), tumor necrosis factor (TNF) and detoxification enzymes such as glutathione peroxidase, glutathione reductase and catalase has also been discussed as an eminent part of the current review.

Key words:

Essential Oils, Anticancer Properties, Apoptosis, Antiproliferative, Cancer Cell Lines

SECONDARY METABOLITES AND ANTIOXIDANT ACTIVITIES IN SIX KOREAN PEANUT SHELLS

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Abstract

Peanut shell; a byproduct of an important leguminous crop, peanut; is a potential source of different functional compounds. Antioxidant activities, secondary metabolites and amino acid contents in peanut shells of six Korean cultivars were studied. Peanut shells showed remarkable antioxidant potentials with high amounts of total polyphenol (428.1–739.8 μg GAE/g), flavonoid (142.6–568.0 μg QE/g), and amino acid (5.76–34.56 mg/g) contents. DPPH (2-2 diphenyl-1-picyrlhydrazyl), ABTS (2, 2 Azino bis (3-ethyl benzothiazoline-6- sulfonic acid) diammonium salt), SOD (Super oxide dismutase)-like activity, and reducing power potential were markedly present in the shells. Results of the present study suggest that shells of Korean peanut cultivars could be potential source of natural antioxidants and functional compounds for various industrial uses including cosmetics.

Keywords: antioxidant activity, cosmetic, free amino acid, peanut shell, polyphenol

MORINGA: A NATURAL REMEDY FOR ARTHRITIS

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Arthritis is illustrated by chronic inflammatory changes; cartilage destruction, joint deformity and disability. Arthritis is prevailing progressively worldwide and makes a significant fiscal loss. About 1% of the people in the globe are affected by arthritis among women being three times more affected than men. In Pakistan 39% of the population is suffering from arthritis and most of them are between the age of 40 to 50 years. The best way to cope these chronic conditions is through nutritional intervention, which is an imperative move towards the relief from such chronic diseases and maintenance of the health. In response, there is a growing interest in diet based strategies, which are seen to be less toxic and have negligible side effects. One dietary strategy aimed at improving such chronic diseases is the use of indigenous plant sources. Among these plants, utilization of *Moringa oleifera as* a cheap indigenous nutritious food plants is considered as the best approach towards fighting against diseases. Moringa leaves are potent source of phenolic acids and flavonoids. Moringa has an ameliorating effect for arthritis which might be mediated by quercetin-3-glucoside, kaempferol, zeatin, rutin and caffeoylquinic acids in the leaf powder. It reduces inflammation by the inhibition of the cyclooxygenase activity, which prevents the synthesis of prostaglandins that are fundamental chemical mediators in inflammatory processes. So, moringa can be a part of diet based therapy for attenuation of such chronic diseases.

Keywords: Arthritis: *Moringa oleifera*, polyphenols; flavonoids, anti-inflammatory compounds

BIO-EVALUATION OF SOME ALLIUM VEGETABLES AGAINST POSTPRANDIAL GLYCEMIA AND LIPEMIA OF TYPE II DIABETES MELLITUS

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ABSTRACT

Postprandial lipemia, glycemia and insulinemia have been implicated in the development of chronic metabolic diseases such as obesity, type I and II diabetes mellitus and coronary vascular diseases. The condition is further aggravated in type II diabetic patients. Allium vegetables as onion and garlic are rich sources of prebiotic compounds (inulin and fructans) and antioxidants (flavonoids, carotenoids, catechins and quercetin) which positively stimulate lipid metabolism, glucose metabolism and satiety. Present study intended to explore the effects of allium vegetable powders on glycemia and lipemia in type II diabetic patients. Core objective of the present study was to use garlic and onion powders to observe changes on glycemic indices and lipid profile post ingestion of meal. Onion and garlic powders were analyzed for chemical composition using HPLC and FTIR analyses. Moreover, thirty patients having type II diabetes voluntarily participated in study and were given treatments based on onion and garlic powders before meal and blood analyses were performed at 0, 30 and 60th day. Postprandial serum glucose, insulin and lipid concentrations were determined using appropriate methods at 0, 30, 60, 120 and 180 minutes post ingestion of meal. The results showed positive effects on postprandial glucose insulin and lipid concentrations in patients receiving a mixture of onion and garlic powders. Furthermore, treatment did not result in any adverse effect on liver and kidney functions. On the bases of present results, it can be concluded that onion and garlic powders may prevent diabetes and cardiovascular diseases by controlling postprandial glycemia and lipemia.

Keywords: Prebiotics, Antioxidants, FTIR, Hyperinsulinemia, Hyperglycemia

ROLE OF GINGER IN CANCER DETERRENCE: A CONCURRENT REVIEW

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Abstract

Ginger, the rhizome of Zingiber officinalis, ranks among one of the extensively used condiment for numerous food products and grasps a strong hold in the ginger family. Its usage has been evidenced since historic epochs for the treatment of various human maladies around the globe. It not only helps in digestion process, nausea and diarrhea but also in stomach issues. Ginger also possesses effective anti-inflammatory and antioxidant properties owing to the presence of few pungent constituents, which has also exhibited anti-cancer activities in experimental carcinogenesis. These constituents include vallinoids, viz. [6]-gingerol and [6]-paradol, and other components like zingerone and shogaols, have also displayed chemo-preventive effects from laboratory studies in numerous experimental prototypes and this process of exploring novel beneficial compounds from this valuable plant for the anticipation of several illnesses is still in progress.

Key words:

Ginger, Cancer, Chemoprevention, 6-Gingerol, 6-Paradol.

Health Related Issues of Children in Pakistan

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Abstract

In developing countries like Pakistan, the health status of children below five years of age is very low. In Pakistan approximately 40% children are malnourished due to underweight. More than half of the children are pretentious by stunt growth and about 9% is mortality rate. There are important regional variations in the rate of malnutrition in Pakistan. Malnutrition occurs in developing countries where deficiency and contagious diseases are common. The results indicate that malnutrition among Pakistani children is common and multiple from individual to community level. The occurrence of stunt growth is lowest in Punjab and highest in Balochistan, which is related with the overall development of the provinces. It is cause of an imbalance between nutritional requirements and utilization. Mostly deaths in children are due to malnutrition, if they survive tend to start school late, lower intelligence level, poor in studies and have poor adult earnings. Most of the children are not immunized through vaccines at their early stage in Pakistan. They are susceptible to infections. The most common infections among children are gastrointestinal infections, which change the nutritional status of children and cause malnutrition among them. The iron deficiency causes anemia a maternal malnutrition should be reduce. The poor nutritional status of mothers is also a cause of malnutrition in child. The common cause of malnutrition in Pakistan is early cutoff of breastfeeding and beginning of formula feeding.

Keywords: Malnutrition, children and Pakistan.

Role of Garlic (Allicin) in Lowering Blood Pressure and CVDs

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Abstract:

Hypertension is a most prevailing disease effecting more than 1 billion people worldwide, characterized by ≥ 140 mm Hg systolic blood pressure (SBP) and ≥ 90 mm Hg of diastolic blood pressure (DBP). Hypertension is a chronic disease, its prognosis can be controlled by proper therapeutic approach. Otherwise it may lead to other complications such as cardiovascular diseases (CVDs), dyslipidemia, kidney failure etc. It is a well-known risk factor cardiovascular disease and mortality. In Pakistan garlic is produced in huge amounts and being utilized as permanent herb for flavoring in food and good source of protein, carbohydrates and phosphorus. Garlic has shown blood pressure lowering effects in hypertension. It contains hydrogen sulfide and allicin, which are effective in lowering both systolic and diastolic pressure by regulating the endothelial nitric oxide (NO), which induce smooth muscle relaxation, vasodilation. If garlic undergoes the process of chopping, the enzyme presents in it, allinase, is converted into alliin (cysteine-sulphoxide) and then into allicin (thiosulphate). Historically, it had been used for many years to manage blood pressure, cardiovascular diseases and lowering blood cholesterol. Several factors effect efficiency of allicin by affecting NO pathways and may contribute to the development of hypertension and can be alleviated by garlic or allicin supplementation. Different forms of garlic can be used to lower blood pressure. Extraction can be done to extract allicin for supplementation. Garlic oil is mostly prepared by steam-distillation process. Many studies in animals and humans showed significant results in lowering blood pressure. Further, research will enable in vivo measurements of allicin and its physiological and pharmacological effects and mechanism can be investigated further.

Keywords: Hypertension, CVDs, Garlic, Allicin

Health Related Benefits of Barley as Prebiotic in our Diet

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Abstract

Barley has new functional and nutritional properties so has high acceptance in our diet. It was used a staple food in past. It is used as whole dehulled grain as well as flour and semolina. It is used to prepare bread, soups and couscous. Barley has a major component known as β glucan. It is an essential component of soluble fiber suggested for hypoglycemia, hypercholesterolemia and used to reduce chemically induced colon cancer. Barley has recently gain commercial attention and attracted research due to its high content of β-glucan. It has efficient antioxidant activity. β-glucan used in cholesterol reduction, glucose metabolism and improved gastrointestinal function. β-glucan acts as soluble fiber and play an important role in the digestive tract as a prebiotic. It is used to maintain the colonic environment and a healthy colon wall where it is available for fermentation by probiotics. Soluble fiber-based prebiotics are important health-promoting functional foods. Soluble fibers are mainly oligosaccharides (e.g. fructo-oligosaccharides) and polysaccharides such as β-glucan, plant gums and arabinoxylans. It is not digested in stomach and small intestine. It is mainly intact into the colon where available for microbial fermentation.

Keywords: Barley, functional foods, β-glucan, Nutrional.

Impact of Micronutrients on the Health Status of Teenage Girls

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Abstract

Teenage is a crucial time for major changes in the body. To maintain growth and basic daily needs, teenagers need adequate amount of nutritional intake. In developing countries like Pakistan, the health status of girls below twenty years of age is very low. In Pakistan approximately 40% girls are malnourished due to underweight. More than half of the girls are pretentious by stunt growth and about 9% is mortality rate. There are important regional variations in the rate of malnutrition in Pakistan. Malnutrition occurs in developing countries where deficiency and contagious diseases are common. The results indicate that malnutrition among Pakistani girls is common and multiple from individual to community level. The occurrence of stunt growth is lowest in Punjab and highest in Balochistan, which is related with the overall development of the provinces. It is cause of an imbalance between nutritional requirements and utilization. Mostly deaths in girls are due to malnutrition, if they survive tend to start school late, lower intelligence level, poor in studies and have poor adult earnings. Most of the children are not immunized through vaccines at their early stage in Pakistan. They are susceptible to infections. The most common infections among children are gastrointestinal infections, which change the nutritional status of children and cause malnutrition among them.

Micronutrients (vitamins and minerals) are vital fundamentals found in foods, which are required in very less amounts for maintenance of health and growth of the body. Inadequate ingestion and little bioavailability of these crucial nutrients can cause the deficiency of these micronutrients.

Keywords: Teenage girls, Pakistan, Malnutrition, Micronutrients

A Review on Phytochemicals and Traditional Uses of Mulberry

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ABSTRACTT

Mulberry, Morus spp. of the family Moraceae has profitable significance trees cultivated in Asian countries. Due to its rich nutritional profile and pharmacological characteristics, utilization of this plant is high as a medicine. Various bioactive components extracted out from the mulberry plants which are being used as medicines. Phytochemicals like Moranolin (DNJ), Moran (glycopeptides), hydrophobic flavonoids (flavones and flavonone), 2-Arylbenzofuran, and Ethanolic extract, Flavonoids, Polyphenols, Carotenoids, Vitamins A, C, E, Ethyl acetate, γ - aminobutyric acid, Flavanics are extracted out from different portions of mulberry plants which have important involvement in Hypoglycemic activity, Anti-obesity action, Lipid-lowering action, Antioxidants action, Anti-inflammatory actions, Antiallergic action, Vasoactive action, Neuroprotective action, Anticancer action. Furthermore, in various tropical regions, sericulture is being experienced to rearmost silkworm to yield silk fibre. This plant is exploited for its lucrative health outcomes and consequently concerned with pharmaceutical industry. Main mandate of the study is to emphasis on antioxidant and medicinal perspectives of mulberry in treatment of various maladies and conclusively to observe result that, investigators might undertake their attentions to discover various portions of mulberry plant existing in nature plentifully.

Key words: Antioxidants action, Hypoglycemic activity, Mulberry, Pharmaceutical industry

Peppermint conventional uses and Its Functionality: A Review

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ABSTRACT

Mentha piperita (Lamiaceae), the peppermint (mint) plant is an aromatic herb which is cultivated in maximum areas of the world, have been used in traditional medicine. Peppermint is a one component consumed in high amount in all over the world as an ingredient in food product are used as an antibacterial and functional component in pharmaceutical industries. It is an affluent source of menthol oil, ascorbic acid, vitamin A, β-carotene, calcium and iron contents. Advanced literature acknowledged that *Mentha piperita* has antioxidant, cytotoxic, antiallergenic, antiviral and antibacterial activities, specially the essential oil of *M. piperita* possesses antimicrobial and antioxidant activities. Composite blend of essential oils is possessing various classes of constituents, primarily terpenoids and phenylpropanoids, which have unique complex chemical structures that are involved in the metabolic reactions. Leaves of mint plant have been used frequently in herbal tea and for cooking purpose to add flavor and aroma. The unique smell and flavor of *Mentha spp* is due to the naturally occurring cyclic terpene alcohol so called menthol. Menthol is recommended as a medication for treatment of digestive disorders, common cold and muscular skeletal pain. The mint plants are rich sources of iron and magnesium which play an important role in maintaining human nutrition. A large volume of literature is available on the therapeutic properties of essential oils which is present in *Mentha spp*. However, there is no much study directed toward the finding antioxidant and antimicrobial properties of the mint leaves which are locally available.

Key Words: Peppermint, essential oils, antioxidants, antibacterial

WHAT IS FOOD LITERACY?

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ABSTRACT

Food literacy is an emerging term and has a number of definitions. It may be defined as cultural, social and environmental exploits in correlation with food that encourage health by influencing decision making power of people. Food literacy is accompanied by intrinsic and extrinsic factors. Planning and management, selection and preparation of food as well as eating are the main domains of attributes of food literacy. Food and nutrition knowledge enables one to understand the type and variety of food, source of food, nutritional value of food and the functional properties of food. Techniques to procure food, its preparation, handling and storage depend on food skills of an individual. The ability to generate intended results is termed as self efficacy. Self efficacy focuses on nutritional literacy, self efficacy of nutrition, self efficacy of food, attitude of food and cooking self efficacy. Ecologic is an interaction of meso and macro systems with food decisions. It includes the norms, cultures, believes and social influences. Food decisions focuses on application of knowledge, information and skills while making food choices. Food literacy is a complex phenomenon that relies on multiple characteristics. These attributes can result to generate a powerful tool for monitoring and evaluating the food literacy interventions.

Key words: Extrinsic and intrinsic factors, planning and management, norms.

Estimation of the antioxidant activity and the total phenolic contents in roots exudates of Canola plant

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ABSTRACT

Plants have remarkable ability to produce and release a variety of organic and inorganic compounds into the rhizosphere in response to various abiotic stresses, known as root exudates. These compounds impart medicinal properties to plants. Some of these compounds act as strong antioxidants and these compounds show beneficial effects as they are obtained from natural sources. Canola plant is an example of such medicinal plants which is employed in the treatment of various diseases like cancer, diabetes, arthritis, many inflammatory and cardiovascular diseases etc. This plant has a number of applications in medicine, food and cosmetic industries due to its higher antioxidant activity. The purpose of current research was to analyze the production and release of root exudates of canola plant under the influence of abiotic stress such as UV, ultrasound and chemical. Total phenolic content and DPPH free radical scavenging activity of root exudates of canola were determined. The two way ANOVA was employed in order to analyze the results. According to results percentage yield ranged from 0.11±0.21 to 1.26±2.51 for coriander. Coriander root exudates showed the range for TPC 12.68±0.32 to 576.63±14.42 mg GAE/g DW. The results of DPPH assay indicated that the DPPH value ranged from 0.52±0.02 to 1.72±0.03 for the root exudates of canola.

Keyword: Canola, Antioxidant activity, Total phenolic contents

One Health Approach for Seroprevalence and Molecular Epidemiosurveillance of Brucellosis

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Keywords
Livestock based economy- Infectious disease- One Health- Brucellosis- Zoonosis- Milk- cELISA- PCR

Abstract

Livestock sector contributes more than 58% to agriculture-based economy of Pakistan. Diseases of socio-economic importance are posing an enormous pressure to the growth of this sector. Zoonotic diseases are generally neglected in wake of epizootics having epidemic potential. One Health is a multi-sectoral approach to control zoonotic diseases at animal level to mitigate risk of transfer to the humans and environment. Despite various control programs, zoonosis is known to cause public health emergencies at various regional and national level. OIE declared brucellosis as a model bacterial disease to control zoonosis in developing countries. Genus *Brucella* is expanding with its discovery in various amphibian species and marine mammals and demands control efforts at various levels. Reporting of zoonosis is less than actual prevalence in third world countries like Pakistan where disease is considered endemic but no official data is available. In this study, brucellosis was used as a model disease to emphasize the significance of One Health. In total, 73 occupationally exposed human and 157 animal blood samples were collected from five different geographical areas of Punjab and one region from KP. Fifty-seven milk samples as environmental samples were aslo collected. Serologically in animals 19(12%) samples were found positive by RBPT and 21(13%) by cELISA. Disease was detected in 20(13%) and 24(15%) samples by applying molecular methods using genus specific PCR *BCSP31* and specie specific PCR *IS711*. Disease was recorded in humans as 11(15%), 14(19%), 13(18%), 14(19%) by RBPT, cELISA, PCR *BCSP31* and PCR *IS711*. Out of 57 milk samples collected from different areas were tested by Milk Ring Test (MRT) and 12(21%) samples were found positive. It is a significant finding that raw milk is a constant source of disease exposure to farmers, milking men and general users. Disease prevalence was more in people associated with milking activities possibly due to use of raw milk. This study validate the prevalence of brucellosis in Pakistan with significant presence of disease in occupationally exposed individuals emphasizing the close collaboration between veterinary and human health sectors. This study will broaden our knowledge of disease

prevalence and epidemiology in Pakistan. The data produced from this study will help in future control and eradication of this important zoonosis using one health approach.