

A REVIEW ON ANTIANXIETY ACTIVITY OF BLACK BERRY IN DIET

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Anxiety disorders are the most common form of psychological disorder and anti-anxiety agent often begin in development. Anxiety is resonant situation of emotional stimulation that contain the fear and worry feeling. Most of the patient prefers herbal medicine to treat disease because of the less side effect and destructive effect of some chemical. Black berry is a fruit which has many medicinal, cosmetics and nutritive value. The present study elaborates therapeutic of black berries. It contains vitamins, steroids and lipids in seed oil and minerals, flavonoids, glycosides, terpenes, acids and tannins in aerial parts that possess diverse pharmacological activities such as antioxidant, anti-carcinogenic, anti-inflammatory, antimicrobial anti-diabetic, anti-diarrheal, and antiviral.

Key words: Anxiety, Psychological, Anti-diabetic, Black berries.

1. Introduction:

Stress and anxiety, depression are of prevalent and highly comorbid psychiatric condition in the world, which are defined as a negative emotional and associated with biochemical, cognitive, behavioral and psychological changes. Herbal medicine are widely used among suffer of mood and anxiety disorders^[1,2]. Due to the side effect and destructive effects of some chemical drugs, many patients prefer herbal medicine to treat disease ^[1]. Depression is a common disorder with prevalence of about 15% during the life cycle and today is considered as a main reason of disability around the world^[3]. Anxiety is resonant situation of emotional stimulation that contain the fear no worry feelings^[4]. Anxiety has various mental and physical signs including palpitation,cramp,perspire ,asthma,nausea,provocation,urination,felling of fear and stress, failure to encounter positionn, uncertainty about future, expectation of sorrow occurance, inability of concentration and night sleeplessness^[5]. About 25% of all drugs prescribed by doctor in the current medicine are obtained from the herbs in different forms.Some of them are produced directly from plant extract and other are produced artificially to provide effects similar to herbal drugs^[6]. Although not all commonly used phytomedicine are safe,most of herbal products available as “OVER THE COUNTER” psychotropic medicines are safe,with fewer adverse effects in comparison to conventional drugs such as anti-depressant^[7]. The consumption of fruits and vegetables may offer protection against various chronic disease,type -2 DM, cancers and may impart other health benefits. Anxiety is a subjective sense of restlessness, distress, trepidation or fearful worry along with a host of autonomic and somatic manifestations. It is a regular, emotional, rational and predictable response to real or potential danger. However, if the symptoms of anxiety are continued, illogical, erratic and/or severe and occur in the absence of stressful events or intervene with everyday events, then these are called anxiety disorders.

a. Black Berry:

The blackberry is an edible fruit produced by many species in the *Rubus* genus in the Rosaceae family, hybrids among these species within the *Rubus* subgenus, and hybrids between the *Rubus* and *Idaeobatus* subgenera. Blackberries grow wild throughout most of Europe.Black berries is recognized as a good source of polyphenols espically anthocyanins,phenolic acid derivatives,flavanols as well as proanthocyanidines compared to other barriers.Jamun is the Indian black berries^[8].

2. Phytochemical Constituents:

The plant materials contain various types of phytochemical constituents such as alkaloids, flavonoids, tannins, saponins, glycosides, terpenoids, sterols, and carbohydrates. It also contains ascorbic acid, organic acids, tannins, and volatile oils. On the basis of these chemical constituents, the plant is very useful antidiarrheal and soothes inflamed mucosa. Black berries contain numerous phytochemical including polyphenols, flavonoids, anthocyanins, salicylic acid, ellagic acid, and fiber. Black berries have both soluble and insoluble fiber.

3. Traditional Uses:

It is used as an excellent remedy against diarrhoea, dysentery, cystitis and haemorrhoid^[9]. The fruit juice is used to treat asthma.The fruit and juice is recommended in anaemia. Leaves are wrapped to stop fungal infection and abscesses on skin^[10]. The jams, prepared without sugar, is prescribed to cure throat ailments in children and as an anti-diarrhea^[11]. The Hippocrates recommended blackberry stems and leaves soaked in white wine to relieve difficulties in childbirth and as an astringent poultice on wounds^[12]. Externally it is used as a gargle to treat gum inflammations, sore throats and mouth ulcers^[13]. A decoction of the twig tops soothes menstruations and also is used to treat diarrhea.Its leaves are chewed to strengthen the gums and to cure thrush^[14].

Decoction of leaves is used as a gargle or mouthwash and also used to treat thrush^[15]. Blackberry juice is recommended in colitis while tea made from its roots is used for relief in labor pain. The leaves of the plant are also used in various respiratory problems^[16]. A methanol extract of the aerial parts has been used for wound healing, as an antiseptic and a disinfectant and to treat cough^[17-18]. Black berry cures skin wounds in cattle^[19].

4. Pharmacological Activity:

i. Antimicrobial Activity:

Riaz and coworkers studied the possible antibacterial activity of the methanol extracts from various parts of the plant (black berries) against eight bacterial strains (*Salmonella typhi*, *Escherichia coli*, *Streptococcus aureus*, *Micrococcus luteus*, *Proteus mirabilis*, *Bacillus subtilis*, *Citrobacteri* sp, *Pseudomonas aeruginosa*). All extracts were found to inhibit growth of bacteria. The order of potency on minimum inhibitory concentration was stem > root > leaves > fruit. The same authors also screened the methanol extracts for their antifungal potential against nine pathogenic fungal strains (*Yersinia aldovae*, *Aspergillus parasiticus*, *Candida albicans*, *Aspergillus niger*, *Aspergillus effusus*, *Macrophomina phaseolina*, *Fusarium solani*, *Trichophyton rubrum*, *Saccharomyces cerevisiae*) without recording any biological activity^[19]. Black berry juice inhibited the growth of *Bacillus cereus*, *Bacillus subtilis*, *Streptococcus marcescens* and *Escherichia coli* from 50% to 75%. A methanol extract of aerial parts of *R. fruticosus* inhibited *Mycobacterium tuberculosis* with MIC of 1 mg/mL in agar dilution test^[20].

ii. Anti-Inflammatory Activity:

There is convincing evidence that increasing consumption of fruits reduces risk of inflammation. Fruit were found to be anti-inflammatory in murine model *in vivo*, with anthocyanins being responsible for this activity^[21].

A water extract of fruits showed stronger anti-inflammatory activity even from aspirin by inhibiting hyaluronidase enzyme *in vitro* thereby confirming traditional use of fruits as anti-inflammatory remedy^[22]. In another study inhibition of hyaluronidase enzyme was linked to GOD-type tannin. Cyanidin-3-O-glucoside present in blackberry extract suppresses NO production which leads to anti-inflammatory effects^[23].

iii. Antidiabetic Activity:

An aqueous tea prepared from black berry fruit was evaluated by an *in vitro* glucose diffusion model but no anti-diabetic effect was recorded^[24]. The water and butanol fractions of a *R. fruticosus* leaves 70% alcoholic extract were active in the treatment and prevention of noninsulin dependent diabetes. Water and butanol extracts from leaves of *R. fruticosus* were reported to be active in non-insulin dependent diabetes^[25]. An aqueous extract of leaves was investigated for its possible anti-diabetic activity in rats. The hypoglycaemic effect demonstrated in normal rats indicates that it is active because counter-regulatory mechanisms cannot normalize rapidly blood glucose levels^[26]. Chromium (Cr³⁺) and zinc (Zn²⁺) supplementation alleviates hyperglycemia and tea made from *R. fruticosus* leaves decreased diabetic symptoms associated with these metals dependent diabetes^[27].

iv. Antiviral Activity:

The berry fruits are an ideal candidate for this search as these are non-toxic and may be recommended for human trials at lower costs. *R. fruticosus* is used in the treatment of influenza in combination with other medicinal plants. The role to control influenza virus may to the presence of polyphenols. Antiviral activity data shows that very little work has been done on this aspect^[28,29].

v. Neuropharmacological Activity:

Evaluated various activities on mice which are grouped as neuropharmacological activities. *R. fruticosus* L. fruit, leaves, root, and stem methanolic extracts were administered to mice at doses of 100, 300, and 500 mg/kg. The order of CNS depressant effect for various parts was fruit > root > leaves > stem. All extracts were found to be anxiolytic in nature, while no muscle relaxing activity or sedative effect was observed. The order of central nervous system (CNS) depressant effect for various parts of *R. fruticosus* was fruit > root > leaves > stem^[30].

vi. Toxicity Studies and Smooth Muscle Activities:

Ali *et al.*, reported that LD50 of acute toxicity studies of crude methanolic extract of blackberry fruits was 887.75 ± 9.22 mg/mL while CC50 of same extract was 13.28 ± 2.47 μ g/mL in brine shrimp cytotoxic studies. Excellent anthelmintic activity was exhibited by 20 mg/mL of extract against *Raillientina spiralis* and *Ascaridia galli* which was 1.37 times higher than albendazole. The extract although toxic is safe at 100 mg/kg. EC50 for spontaneous relaxant activity and for 80 mM KCl-induced contractions was 7.96 ± 0.1 and 6.45 ± 0.29 mg/mL respectively. The extract relaxed the spontaneous contractions in a concentration dependent manner on jejunum preparations. The results indicated that smooth muscle activity was mediated via inhibition of voltage gated channels [31].

vii. Nutraceutical Usage:

Blackberry juices, prepared with defatted milk and water, increased the ascorbic acid content in the plasma. Health granules and health beverages are prepared from *R. fruticosus* and other plants used as dietary supplement and as immunity enhancer [32,33].

5. Conclusion:

The present study reveals that the plant of black berries is having useful traditional value. Gross literature study shows it has also been concluded that the plant is scientifically proven to possess antimicrobial activity, anti-inflammatory activity, antidiabetic activity, antiviral activity, neuropharmacological activity, toxicity studies. By overall study it is believed that black berries is a novel multipurpose medicinal and further study can need to carried out to explore the black berries for the development medicines and to provide new more efficacious and less toxic medicinal agent for the aliment of disease plant.

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