Analysis of Bioactive Components of Dr.M.-Healing® As a Mixed Herbal Product

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Abstract

The food supplements which are made from plant products have been used throughout human history for various purposes. Still, many of our modern drugs such as aspirin, morphine (or morphin, see current use), tamoxifen, vincristine, etc. are originally derived from plant materials. First mention here what is this healing, its composition, use, etc. This study was aimed to distill the bioactive compounds of Dr.M.Healing® to explore its possible use as a health benefit herbal product. The chemical analysis of Dr.M. Healing® (using what method, mention here) revealed that this herbal mixture contains YM-53601, L-arginine, betaine, benzanthrone, lupanine, germanium B, sarpagine, 4-hydroxycomarin, amygdalin, phenylacetic acid, derrustone, ichtynone, a-asarone, visnadin, 16-phonyx-o-tetranor-PGE2, osthol, anthralin, n-pentadecylamine, 2-methoxyxanthone, 13-docosenamide, sparfloxacin, and triphenylphosphane. Interestingly, this herbal mixture contained a high concentration of amygdalin compared to its other ingredients. This study suggests that, based on its ingredients, Dr. M. Healing® herbal mixture of Turkey may have several health benefit activities. This wide range of its possible beneficial health effects should be investigated and supported by animal experiments and clinical trials in the future.

Keywords: Dr.M. Healing® herbal formulation; Food supplement; Herbal mixture; Health

Introduction

The currently used food supplements which are made from plants products continue to expand rapidly across the world, with many people now resorting to these products for the treatment of various health challenges in different national healthcare settings. It is estimated that approximately 80% of the world’s population living in the developing world rely on herbal medicinal products as a primary source of healthcare and traditional medical practice which involves the use of herbs which is considered as an integral part of the culture in those communities. Still, many of our modern drugs such as aspirin, morphine (or morphin), tamoxifen, vincristine, etc. are originally derived from plant materials. (1-3). In this study, we were interested to distill the content of a herbal mixture, called (Dr.M. Healing®) which is widely used in Turkey for food supplement especially in patients with cancer.

Material and Methods

Chemicals and Materials

Acetonitrile and formic acid for LC-MS (Liquid Chromatography-Mass Spectrometry) were purchased from the manufacturer (Merck KGaA, Darmstadt, Germany). All other analytical chemical reagents of analytical grade were purchased from the same manufacturer (Merck KGaA, Darmstadt, Germany). Water was deionized and double-distilled.

Preparation of Dr.M. Healing®

Dr.M. Healing®, manufactured by, (MetinOzcsekli Herbal Industry and Trade Limited Company, Republic of Turkey of Ministry of Food, Agriculture and Livestock, Food Supplement Certification Number:003616/TR-55-K-014095) is a herbal mixture which is widely used as alternative medicine in Turkey food supplement especially in patients with cancer. It is prepared with several herbs which include e especially Comminopora myrrha, Curcuma zedoaria, Elettaria cardamomum, Olea europeae, Eryngium campestre, Illicium verum, Cinnamomum verum, Mysristica frangrans, Crocus sativus. The plant roots of the above-mentioned herbs were milled, powdered and then mixed with ethyl alcohol, which is diluted with 35% distilled water. This mixture was placed in the inner part of a chromium-containing vessel. This double-walled boiler contained water at outside, and the mixture of these powdered plant roots and ethyl alcohol is kept in the interior part for about 25-30 days. After 25-30 days, the boiler was stirred for 5 minutes per hour with an automatic mixer located at the top of the boiler. When the fermentation process was completed, following the production of the transparent pipe indicator outside this double screwed boiler, the mixture was passed through thin chrome filters and the boilers were emptied. The product which is rested in the chrome tanks for 24 hours gets automatically filled with the machines working in the fully automatic glass bell after 24 hours.

An aliquot of 1.0 μL of each sample was injected into the LC-MS instrument for analysis. A volume of 2 μL was injected into the high-pressure liquid chromatography coupled with quadrupole time-of-flight mass spectrometry (HPLC-Q-TOF-MS) system for the analysis.

HPLC Conditions

The chromatography analytical procedures were performed on an Agilent 1260 Series (Agilent, Santa Clara, CA, USA) LC system, equipped with a binary pump, an online degasser, an auto-sampler, and a column compartment. The column temperature was set at 30°C. The separation was carried out on an Agilent Poroshell 120 EC-C18 column (50 × 3 mm, 2.7 mm; Agilent, CA, USA), preceded by a C18 guard column (4.00 × 2.00 mm; Agilent, CA, USA). The binary gradient elution system consisted of 0.1 % formic acid in water (solvent A) and 0.1% formic acid in acetonitrile (solvent B), and separation was achieved using the following gradient: 10 % B at 0-3 min; 10-50 % B at 3-5 min; 80 % B at 5-7 min; 95 % B at 7-9 minute and returned to initial conditions and maintained 10 min for equilibration. The flow rate was 0.4 mL/min and the sample
injection volume was 1.0 μL.

**Mass spectrometry Conditions**

The HPLC system was connected to an Agilent 6530 Q-TOF mass spectrometer (Agilent, Santa Clara, CA, USA). Mass spectrometry was performed using an Agilent 6530 Q-TOF-MS equipped with an electrospray ionization (ESI) interface, and was operated in negative ion mode with parameters set as follows: capillary voltage, 3000 V; fragmentor, 200 V; skimmer, 65 V; OCT 1 RF Vpp, 750 V; pressure of nebulizer, 325 °C; sheath gas temperature, 350 °C. Nitrogen was used as a sheath and drying gas at a flow rate of 8.0 and 10.0 L/min, respectively. Data were collected in centroid mode and the mass range was set at m/z 50–1200 using the extended dynamic range. The collision energies were set at 10, 20 and 40 V. All masses were corrected by the internal standards provided by Agilent Technologies (Agilent Part Number: G1969-85001) with m/z at 112.050873 (purine) and 922.009798 (HP-0921) in (+) ESI mode. The MassHunter Workstation software LC/MS Data Acquisition for 6500 series Q-TOF (version B.05.01) was used to control all the acquisition parameters of the HPLC Q-TOF-MS system and also to process the obtained data.

**Ethical Statement**

The study was performed in accordance with the ethical principles of the Good Clinical Practice Guidelines (GCP) and with applicable local regulatory requirements. The protocol was approved by local ethics review boards.

**Results**

The chemical analysis of Dr.M. Healing® products revealed that this herbal mixture contained YM-53601, L-arginine, betaine, benzanthrone, lupanine, germanium B, sar pangine, 4-hydroxycoyramin, amygdalin, phenylactic acid, derrustone, ichtynone, a-asarone, visnadin, 16-phenoyo-o-tetranor-PGE2, osthol, anthralin, n-pentadecylamine, 2-methoxyxanthone, 13-docosenamide, sparloxacin and triphenylphosphine, and their medical effects are discussed below:

**YM-53601:** YM-53601 is a novel squalene synthase inhibitor. Reported research suggests that YM-53601 rapidly decreases plasma cholesterol, and this compound may be effective in decreasing plasma cholesterol levels early in the course of treatment of hypercholesterolemia in humans. This effect suggests that there is a positive role between YM-53601 and resistance for hepatocellular carcinoma [4–6].

**L-Arginine:** L-arginine is an amino acid and is necessary for the body to make proteins. It is obtained from the diet and is found in red meat, poultry, fish, and dairy products. It is used as a medicine for heart/blood vessel conditions, including congestive heart failure, chest pain, high blood pressure, coronary artery disease, etc.

Recent reports suggest that the L-arginine is also used for recurrent pain in the legs caused due to blocked arteries, decreased mental capacity in the elderly, erectile dysfunction and male infertility. It is also used to prevent the common cold, high blood pressure during pregnancy, improve kidney function after a kidney transplant, athletic performance, boost the immune system, and prevent inflammation of the digestive tract in premature infants. L-arginine is used in combination with a number of over-the-counter and prescription medications for various conditions. For example, L-arginine is used along with ibuprofen for migraine headaches; with conventional chemotherapy drugs for treating breast cancer; with other amino acids for treating weight loss in people with AIDS; and with fish oil and other supplements for reducing infections, improving wound healing and shortening recovery time after surgery. L-arginine products are used in wound healing and for increasing blood flow to cold hands and feet, especially in people with diabetes. It also stimulates the release of growth hormone, insulin, and other substances in the body. Animal research in cancer chemotherapy has shown that large doses of arginine may interfere with tumor induction. Short-term arginine supplementation may assist in the maintenance of immune function during chemotherapy. Arginine supplementation (30 g/day for three days) reduced chemotherapy-induced suppression of lymphokine-activated killer cell cytotoxicity and lymphocyte mitogenic reactivity in patients with locally advanced breast cancer. In another study, arginine supplementation (30 g/day for three days prior to surgery) significantly enhanced the activity of tumour-infiltrating lymphocytes in human colorectal cancers. Arginine, RNA and fish oil have been combined to improve immune function in cancer patients. On the other hand, arginine has been shown to promote cancer growth in animal and human research. Polyamines act as growth factors for cancers. In several types of cancer, drugs are being investigated to inhibit ornithine decarboxylase and hence inhibit polyamine formation. The possibility of arginine stimulating polyamine formation might be a concern in chronic administration since both arginine and ornithine decarboxylase appears to be up-regulated in some cancers [7].

**Betaine:** Betaine is a naturally occurring compound that has been of interest for its role in osmoregulation and betaine hydrochloride has been used as a source of hydrochloric acid in the treatment of hypochlorhydria. It has also been used in medicine for the treatment of liver disorders, for hyperkalemia, for homocystinuria, and for gastrointestinal disturbances. One study found that higher betaine intake protects against lung cancer by minimizing the adverse effects of smoking. A second suggests that betaine intake may lower the risk of breast cancer [8,9].

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<table>
<thead>
<tr>
<th>Retention Time (RT)</th>
<th>Contents</th>
<th>Mass</th>
<th>DB Formula</th>
<th>Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.579</td>
<td>YM-53601</td>
<td>336</td>
<td>C21H21FN2O</td>
<td>Squalene synthesis inhibitor, Anti-hyperlipidemic, Decreasing chemotherapy resistance for hepatocellular carcinoma</td>
</tr>
<tr>
<td>0.772</td>
<td>L-Arginine</td>
<td>174</td>
<td>C5H14N4O2</td>
<td>Anti-hypertensive, Cardioprotective, Immunomodulation, Analgesic. Also, they can using the treatment of erectile dysfunction, senile dementia, maintenance of immune function during chemotherapy.</td>
</tr>
<tr>
<td>0.814</td>
<td>Betaine</td>
<td>110</td>
<td>C5H12N2O2</td>
<td>The treatment of liver disorders, for hyperkalaemia, for hypoxia, and for gastrointestinal disturbances. Betaine intake protects against lung cancer by minimizing the adverse effects of smoking and may lower the risk of breast cancer.</td>
</tr>
<tr>
<td>1.604</td>
<td>Benzonathone</td>
<td>230</td>
<td>C17H10O</td>
<td>Larvicide Anti-viral</td>
</tr>
<tr>
<td>1.974</td>
<td>Lupanine</td>
<td>248</td>
<td>C15H24N2O</td>
<td>Stimulates the body's immune system and some cancer patients who have tried the remedy say that it helps their health withstand chemotherapy.</td>
</tr>
<tr>
<td>2.9</td>
<td>Germanin B</td>
<td>474</td>
<td>C23H20O11</td>
<td>Cytotoxic</td>
</tr>
<tr>
<td>3.612</td>
<td>Sarpagine</td>
<td>310</td>
<td>C19H22N2O2</td>
<td>Anticancer, Antibacterial, Anti-arrhythmic, Anti-inflammatory and Anti-microbial</td>
</tr>
<tr>
<td>3.682</td>
<td>4-Hydroxycoumarin</td>
<td>162</td>
<td>C9H6O3</td>
<td>Anticoagulant</td>
</tr>
<tr>
<td>3.825</td>
<td>Amygdalin</td>
<td>457</td>
<td>C20H27NO11</td>
<td>In the 1970s, it was widely promoted as an anti-cancer agent, in particular as a treatment for chronic gastric and pancreatic cancer.</td>
</tr>
<tr>
<td>5.398</td>
<td>Phenolic Acid</td>
<td>130</td>
<td>C8H8O2</td>
<td>Treatment of hyperammonemia</td>
</tr>
<tr>
<td>5.65</td>
<td>Derrustone</td>
<td>326</td>
<td>C18H14O5</td>
<td>Anti-cancer</td>
</tr>
<tr>
<td>6.205</td>
<td>Salidrac</td>
<td>356</td>
<td>C20H17F035</td>
<td>Analgesic Antiinflammatory</td>
</tr>
<tr>
<td>6.786</td>
<td>Ichthyone</td>
<td>408</td>
<td>C23H20O7</td>
<td>Sedative effects, marked antiarrhythmic and anti-hypertensive activities, and also anti-inflammatory and antispasmodic action on smooth muscles.</td>
</tr>
<tr>
<td>6.921</td>
<td>a-Asarone</td>
<td>208</td>
<td>C12H16O3</td>
<td>Treating epilepsy, cough, bronchitis and asthma. It exhibits neuroprotective, anti-inflammatory, anti-oxidative and anti-inflammatory action.</td>
</tr>
<tr>
<td>7.063</td>
<td>Visnadin</td>
<td>380</td>
<td>C21H24O7</td>
<td>Peripheral and coronary vasodilator activities and has been used for the treatment of angina pectoris.</td>
</tr>
<tr>
<td>7.393</td>
<td>16-Phenoxy-tetraenone-PGE2</td>
<td>390</td>
<td>C22H20O5</td>
<td>Freesaurin E2 (PGE2), an essential homoeostatic factor, is also a key mediator of inflammation in chronic infections and cancer</td>
</tr>
<tr>
<td>7.433</td>
<td>Osthole</td>
<td>244</td>
<td>C15H16O3</td>
<td>Antioxidant, anticancer, anti-inflammatory, and immunomodulatory.</td>
</tr>
<tr>
<td>7.753/6.678</td>
<td>Anthraquin</td>
<td>220/226</td>
<td>C14H10O3</td>
<td>Anti-proliferative and anti-inflammatory effects on psoriatic and normal skin</td>
</tr>
<tr>
<td>7.996</td>
<td>n-Pentadecylamine</td>
<td>227</td>
<td>C15H23N</td>
<td>Pentadecylamine acid may decrease mother-to-child transmission of HIV through breastfeeding.</td>
</tr>
<tr>
<td>11.664</td>
<td>Sparfloxacin</td>
<td>392</td>
<td>C19H22F2N4O3</td>
<td>Anti-bacterial</td>
</tr>
</tbody>
</table>

Table 1: The Contents and Efficacy of DRM-Healing®
Benzanthonre: Benzanthonre (BZA) is an aromatic hydrocarbon derivative, and it is widely distributed in plants, especially in the families, Fabaceae, Liliaceae, Polygonaceae, and Rhamnaceae. BZA is a natural product with stimulatory effects on the intestine and are the main active constituents in herbs often used to relieve constipation. The anthrones are used in medicine as laxative because of their ability to stimulate the motion of the colon and reduce water reabsorption [10].

Lupanine: Lupanine is a bitter crystalline poisonous alkaloid found in various lupines. As per previous reports, lupanine extract made from the roots of lupine stimulates the body’s immune system, and some cancer patients who have tried the remedy claim that it helps their bodies withstand chemotherapy [11].

Germanaism B: Germanaism B (Nigrin 4-0-β-D-glucopyranoside) has also been found in other Iris species such as I. lepophylla Lingelsh. ex H. Limpr. and I. pseudopumila Tineo. It has cytotoxic activity, which makes it an important isoflavone [12-14].

Sarpagine: The sarpagine-related alkaloids mainly occur in the plant family of Apocynaceae. Alkaloid-rich derivatives of these families have been used in traditional medicine against a variety of diseases because of their interesting antitumor, antibacterial, anti-arrhythmic, anti-inflammatory, and an-malarial activities [15].

4-Hydroxycoumarin: 4-Hydroxycoumarin is an important fungal metabolite from the precursor coumarin, and its production leads to further fermentative production of the natural anticoagulant dicoumarol. They have shown a remarkably broad spectrum of pharmacological and physiological activities and are used as anticoagulant [16].

Amygdalin: Amygdalin is found in many plants, but most notably in the seeds (kernels) of apricot, bitter almonds, apple, peach, and plum. Known as laetrile, it is a partly synthetic form of the natural substance amygdalin and in the 1970s, laetrile was widely promoted as an anti-cancer agent, either on its own or as part of a programme with a particular diet, high dose vitamin supplements and pancreatic enzymes [17,18].

Phenylacetic Acid: Phenylacetic acid is used in the synthesis of diclofenac and occurs naturally in various types of fruits and other plants. It is a fragrant phenolic used as a perfume agent and food additive. It is used in medicines, including the treatment of hyperammonemia for patients with deficiencies related to the urea cycle, and as a side chain precursor in the production of penicillin G [19-21].

Derrustone: Derrustone is a one of the new isoflavones and it has been synthesized from the root material of plant, Derris robusta. It has been proposed as a anti-cancer agent in past [22].

Sulindac: Sulindac is a sulfinylindene derivative prodrug, whose sulphynil moiety is converted in vivo to an active non-steroidal anti-inflammatory drug analagous with potential antineoplastic activity. Converted in vivo to an active metabolite, sulindac, a NSAID, blocks the cyclo-oxygenase monophosphate-phosphodiesterase (cGMP-PDE), an enzyme that inhibits the normal apoptosis signal pathway; this inhibition permits the apoptotic signal pathway to proceed unopposed, resulting in apoptotic cell death [23].

Ichtyonin: The applicable part of Jamaican dogwood is the root bark and it does contain some isoflavonoid compounds (jamaicin, ichtyonine, millitone) that have distinctive properties (cited suitable references). Animal studies have demonstrated that extract of Jamaican dogwood has sedative effects, marked antisudive and antiprurctic activities, and also anti-inflammatory and anti-spasmodic action on smooth muscles. In in vitro tests it has revealed antispasmodic effects. Also, rotenone has shown some antioxidant activity towards lymphocytic leukemia and human epidermoid carcinoma of the nasopharynx [24].

α-Asarone: Asarone is an ether which is found in certain plants such as Acorus and Asarum. α-Asarone is an effective component isolated from the Chinese medicinal herb Acorus tatarinowii. As volatile fragrance oil, it is used in killing pests and bacteria. It is clinically used as medication for treating epilepsy, cough, bronchitis and asthma. Also, it exhibits neuroprotective, anti-oxidative, anti-inflammatory, and cognitive enhancing actions [25-27].

Visnadine: Visnadine is an active principle extracted from the fruit of Ammi visnaga. It exhibits peripheral and coronary vasodilator activities and has been used for the treatment of angina pectoris. It is also useful in various vascular complications. It functions by improving circulation from the micro level and it is a medicine used as vasodilator in vascular disorders. Also several skin problems get resolved due to improvement in blood circulation such as psoriasis, vitiligo and some other skin disorders have shown signs of improvement with the administration of this medicine. It was first isolated from bishop’s weed (Ammi visnaga), a plant indigenous to the Mediterranean region which has been used for centuries in Egypt as a spasmylic [20].

16-Phenoxy-o-tetranor-PGE2: Prostaglandin E2 (PGE2) is a naturally occurring prostaglandin. It is also known as dinoprostone which is widely used in medicine as a medication in labor induction, bleeding after delivery, termination of pregnancy, and in newborn babies to keep the ductus arteriosus open. Prostaglandin E2 (PGE2) is one of the most important biologically active prostanooids found throughout the gastrointestinal tract and it regulates many physiological functions of the gut including mucosal protection, gastrointestinal secretion and motility. Also, PGE2, an essential homeostatic factor, is also a key mediator of immunopathology in chronic infections and cancer [29,30].

Osthoh: Osthoh is a chemical component which is a derivative of coumarin and it is found in some of the plants like, Cnidium monnieri, Angelica archangelica and Angelica pubescens. Osthoh is a main bio-active component of the herb. High content of osthoh is found in the mature fruit of Cnidium monnieri (Fructus cnidii), which is mostly applied in clinical practice of Traditional Chinese Medicine (TCM), while it is also widely found in other medicinal plants including Angelica, Archar gelica, Citrus, Clausena. Fructus cnidii strengthens immune system and improves male function, relieving rheumatic pain and eliminating dampness; most of these medicinal properties are considered to attribute to one of its major bioactive components, osthoh. Modern research have suggested that osthoh exhibits antioxidant, anticancer, anti-inflammatory, and immune modulatory properties [31,32].

Anthralin: Anthralin, also known as Dithranol, was firstly synthesized in 1916 and it is a derivative of chrysarobin which is contained from the Goa powder. It is an active component in topical formulations for the treatment of psoriasis. Anthralin is medically and chemically an important component which can be found in rhubarb roots and although the mechanism of action of anthralin is not fully explained, but the drug has proved anti-proliferative and anti-inflammatory effects on psoriatic and normal skin.

n-Pentadecylamine: Pentadecylamine is a saturated fatty amine and it can be synthesized from pentadecanoic acid, however this is rare in nature making pentadecylamine rare by extension, as such it has no significant commercial applications. Pentadecanoic acid is a saturated fatty acid which molecular formula is CH3(CH2)13COOH. It is rare in nature, being found at the level of 1.2% in the milk fat from cows. It has been reported that the Pentadecanoic acid may...
decrease mother-to-child transmission of HIV through breastfeeding [34–36].

**2-Methoxyxanthone:** 2-methoxyxanthone is a member of the class of compounds known as xanthenes and they are polycyclic aromatic compounds containing a xanthene moiety conjugated to a ketone group at carbon 9. 2-methoxyxanthone can be found in fruits, herbs, spices and a number of xanthenes have been isolated from natural sources of higher plants, fungi, ferns, and lichens. They have great importance because of their medicinal properties such as hepatoprotective, anticarcinogenic, antilepsy, antimalarial, antioxidant, anticholinergic, mutagenicity, radioprotective, immunomodulatory, anti-bone resorption, antiparasitic, neuraminidase inhibitory, antimicrobial, antitumoral, antifungal, algicidal, ant-HIV, cardioprotective, antidiabetic, antidiabetes, antihyperlipidemic, antithrombotic, ant-inflammatory, anti-ulcer, anti-lactic, hypolipidemic, analgesic, antiasthmatic, antihistaminic, antiamoebic, diuretic, anti-diarrheal, larvicidal, and ovicidal activities have been reported for natural occurring xanthenes [37].

**13-Docosenamide:** 13-Docosenamide is the amide of docosenoic acid and it was firstly identified in the cerebrospinal fluid of sleep-deprived cats. Erucic acid is also known as cis-13-docosenoic acid and it is present in wallflower seed with a reported content of 20 to 54% in high erucic acid rapeseed oil, and 42% in mustard oil. There are several researches about erucic acid. In one study, a 5-year-old boy with adrenoleukodystrophy, with clinical symptoms of visual, mental and motor disturbances which progressed rapidly, was treated with Lorenzo’s oil consisting 1 volume of glyceryl tristearate and 4 volumes of glycerol tristearate. Five months after initiation of this therapy, ability to swallow was enhanced and T2-weighted magnetic resonance imaging of the brain revealed regression of high intensity area of the parieto-occipital white matter [38,39].

**Sparfloxacin:** Sparfloxacin is a fluoroquinolone antibiotic and is recently approved by FDA as a new antibiotic. It is used to treat most bacterial infections, such as respiratory tract infections, middle ear infections, skin infections and urinary tract infections. Several plants, animals and microbial species produce quinolone compounds of medicinal interest such as the antimalarial quinine extracted from Cinchona spp., or the 2-quinoline casimiroine, an antimutagen extracted from Casimiroa edulis [40].

**Triphenyl phosphate:** According to reported articles, 3,4-dihydroprymidin-2(1H)-ones (DHPM) and their sulfur analogs have been possess extraordinary pharmacological capacities including antiviral, antitumor, antibacterial, anti-inflammatory and antioxidant activities. Also, Dihydropyrimidinones have displayed significant therapeutic and pharmacological facilities as the complementary backbones of some calcium channel blockers, calcium channel modulators, antihypertensive agents and α-1-adrenergic receptor antagonists [41].

**Sulfadimidine:** Sulfadimidine is widely used combination with chlorotetracycline and penicillin in pigs for maintenance of weight gain in the presence of atrophic rhinitis, growth promotion and increased feed efficiency in veterinary medicine. Also, it is effective against to most diseases in food-producing animals. It has an antimicrobial activity like as other sulfonamides [42].

In conclusion, this study highlights that Dr.M. Healing® herbal product may have anti-hyperlipidemic, anti-hypertensive, anti-arrhythmic, anti-cancer; immunomodulator; anti-microbial, antiviral, anticoagulant, sedative effects, antitussive, antipyretic activities, anti-spasmodic action, anti-oxidative, anticonvulsive, peripheral and coronary vasodilator, antidiabetic, analgesic; antiasthmatic, antihistaminic, antiamoebic and diuretic effects. Also, it can be used for the treatment of erectile dysfunction, healing of wounds, gastrointestinal disturbance, adverse effects of chemotherapy, epilepsy, cough, bronchitis, asthma, cognitive enhancing action, psoriasis, vitiligo, some other skin disorders, childhood adrenoleukodystrophy (ALD) and adrenomyelo neuropathy (AMN). It is suggested that all the therapeutic effects of DrM. Healing® herbal product should be supported by animal and human experiments.

**Disclosure**

The authors have no conflicts of interest to declare.

**References**


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