

Optimizing antioxidant status with herbal medicine  
workers in contact with toxic metals

N.Yu. Sadovskaya, T.L. Kiseleva

(Institute of Homeopathy and Naturotherapy of the Federal Scientific Clinical and  
Experimental Center for Traditional Methods of Diagnostics and Treatment  
Roszdrav, Moscow)

Those working in professional contact with toxic metals and elements (lead, cadmium, mercury, beryllium, nickel, chromium, arsenic, antimony, barium, bismuth, thallium, aluminum) tend to accumulate these chemical elements in the body, which leads to including, to the activation of lipid peroxidation [1, 4, 5, 8] and other negative consequences requiring phytocorrection.

Some essential bioelements are included in the active centers of enzymes that are the basis of the body's antioxidant defense, namely: zinc, copper, manganese are components of superoxide dismutase, iron is a component of catalase, selenium is glutathione peroxidase [4, 5]. Magnesium is part of the mitochondrial superoxide dismutase. In addition to the listed enzymes, endogenous antioxidants include bilirubin, ubiquinone, cysteine, glutathione, histidine, sulfhydryl groups of protein, taurine, urates, estrogens, androgens, phenylalkylamines. Endogenous antioxidants include biologically active substances of plant origin: carotenoids, vitamins C, E, A, procyanidol oligomers, anthocyanides, bioflavonoids, plant phenolic acids [4, 9, 10].

In medicinal herbal funds (LRS), the received from medicinal plant materials, many trace elements, vitamins, anthocyanides, bioflavonoids, phenolic acids, which have an antioxidant effect, are transferred. Proceeding from this, MPs are considered the most effective and universal means for the treatment of disorders of microelement metabolism, including in the so-called practically healthy people living in unfavorable environmental conditions.

In order to carry out phytocorrection in the specified contingent of patients working in direct contact with heavy metals, in this study we selected medicinal products containing optimal phytochemical ratios of antioxidant substances, in accordance with the chemical composition of the herbal ingredients of the collection, their pharmacological action and indications for use introduced to the State Register [2, 3, 6, 7, 10].

As a result of the information and analytical study, we found that plants-concentrators and raw materials-concentrators of zinc (> 50 µg / g of dry plant materials), selenium (> 0.1 µg / g), magnesium (> 500 µg / g), manganese (> 200 µg / g), copper (> 5 µg / g) and iron (> 200 µg / g) can be:

wild strawberry leaves, stinging nettle leaves, chamomile flowers (they simultaneously concentrate selenium, magnesium, iron); hop cones, parsley grass, lingonberry leaves (selenium, zinc, magnesium); birch leaves, dry marsh grass, sea buckthorn buckthorn leaves (zinc, manganese); barberry leaves, string grass, anise fruits (copper); Chinese tea bush leaves (copper, manganese); rosehip fruit, creeping thyme (thyme) herb, (selenium, iron); elecampane tall grass, sweet clover grass, caraway fruits (seeds), viburnum fruits, rowan fruits (selenium) [6].

Taking into account the fact that in the morning it is advisable to use a medicinal product with a sympatotropic, activating effect, and for evening intake - with a vagotropic or indifferent effect on the autonomic nervous system, we have compiled and tested the following recipes for fees based on medicinal plant materials and food plants.

Collection number 1 for the morning reception contains (in weight ratios): Chinese tea bush leaves (green tea) 50%, ground ginger root 5%, creeping thyme grass 10%, barberry leaves 15%, elecampane tall grass 10%, birch leaves 10%.

Collection number 2 for the evening reception includes: sea buckthorn buckthorn leaves 30%, oregano herb 10%, hop cones 10%, wild strawberry leaves 10%, caraway fruits (seeds 10%), chamomile flowers 10%, sweet clover grass 10%, lingonberry leaves 10%.

According to experimental and clinical data, the ingredients of both preparations have a multivitamin, diuretic, choleric, hepatoprotective, cardioprotective, vasodilating effect, activate the mucociliary-drainage function of the lungs [2, 3, 5, 6].

Preparation of fees: the ingredients are crushed to a particle size of 3–7 mm and thoroughly mixed. Aqueous extracts from collections are prepared at home according to generally accepted technology in accordance with the requirements of the State Pharmacopoeia of the XI edition, but with a ratio of raw materials and finished extraction of 1:20. The daily dose of a mixture of dry plant materials is 20 g. Each infusion is taken 200 g 2 times a day 20-30 minutes before meals for 2 weeks. The frequency of reception of fees, taking into account the time of day, is determined by the doctor.

For working patients, the following herbal spices with a high content of macro- and microelements, as well as essential oils are recommended for eating: ground ginger rhizome, peppermint leaves, Sarepta mustard seeds, parsley leaves, oregano herb, creeping thyme herb, caraway fruit (seeds), dill fruits (seeds), garlic bulbs and leaves. 2-3-component teas from various combinations of fruits of viburnum, mountain ash, rose hips, barberry, hawthorn, black currant, black currant leaves and chicory in the form of 1:20 water infusions can be consumed in between infusions and gatherings. It is recommended to take teas all year round, alternating them every two to three weeks.

Given the difficult ecological situation in the metropolis, the recipes we have developed for the preparation of infusions, which have multivitamin, detoxifying and antioxidant effects, can be recommended not

only for those working with heavy metals and / or living in areas of technogenic pollution, but also for patients who need appropriate actions for phytocorrection of pathological conditions.

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