THE COMMON OAT

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When medicinal plants are spoken of, it is certain that no-one would immediately think of cereals although they have had a place in healing for thousands of years. The oat – *Avena sativa* – also known as the white or common oat provides several very different medicinal substances with a broad range of possible uses. These range from treatment of the skin to gastrointestinal diseases and, for instance, to prevention of arteriosclerosis and type 2 diabetes mellitus. For this reason and because the fields of dermatology and nutrition have not yet been covered by the medicinal plant of the year, the common oat was named as medicinal plant of the year 2017 by the Study Group for the Historical Development of Medicinal Plant Science at Würzburg University.

Oats, like wheat, rye or barley, are members of the sweet grass family (Poaceae). In contrast to the family members mentioned, the grains are not formed in ears but in highly branched panicles, which is why an oat plant yields less crop and is more difficult to harvest. Furthermore, the grains are surrounded by husks that have to be removed using a special milling process. On the other hand, the oat plant thrives on poor soil and in regions with high rainfall. It is superior to the usual types of grain in terms of nutrients and last but not least in taste.

Oats provide a total of three different medicinal substances. Usually only straw (Stramentum avenae) is found in the respective technical literature; however, the herb (Herba avenae) and the grain (Fructus avenae) have recently become increasingly important.

Oat straw is used for baths to help treat skin damage and itching.

To use the herb, the oat is harvested from its flowers. This herb is rich in flavonoids and saponins and contains a high proportion of minerals (potassium, calcium, magnesium etc.) whereby the flavonoids are attributed to have anti-inflammatory properties and the saponins are attributed to have immunoregulatory properties. Therefore, extracts of oat herb are used in cases of dry and atopic skin. The symptoms of atopic skin, also known as atopic dermatitis, atopic eczema or (outdated) neurodermatitis in the field of dermatology, are redness, formation of scales, eczema that sometimes weeps and intense itching. In industrial countries, up to 20 percent of children and three percent of adults suffer from this illness, which is treated by combating skin dryness and with anti-inflammatory drugs for external use. In the 90s, an especially suitable variety of white oat with a particularly high proportion of flavonoids and saponins was obtained in France by selection. It is harvested while still growing and is purified using a special extraction procedure. According to the current state of the art, it is free of proteins and also of gluten. Its relevance for dermatology has already been demonstrated in more recent publications. Corresponding skincare products such as creams, body lotion and bath products are extremely well tolerated by allergy suffers. In addition to neurodermatitis, oat herb extracts can also be used to treat wounds and for sensitive skin, such as baby skin, ageing skin, rosacea and last but not least for psoriasis.

Oat herb extracts are also offered for calming anxiety, to combat stress and to improve concentration and learning ability. However, these effects should be supported by means of further studies.

The fruit, the oat grain, is used as a fully ripened grain. In addition to the high vitamin B1 and B6 content, oat grain also provides a large amount of fibre. The beta-glucans which make up approximately half of the total fibre content in oats are particularly interesting. 100 grammes of oat flakes contain approximately 4.5 grammes of beta-glucans, while oat bran actually contains more than 8 grammes per 100 grammes. The chemical and physical properties of beta-glucans from oat have a range of physiological effects on the digestive tract and on metabolism. At the forefront are the positive effects on cholesterol and blood glucose levels.

The ability of beta-glucans from oat to bind bile acids probably leads to elimination of cholesterol which lowers the total and LDL cholesterol level. This protects the blood vessels from harmful deposits. Therefore, the European Food Safety Authority (EFSA) confirmed in 2011 that consumption of beta-glucans from oats can help to lower cholesterol levels.

The fibre delays absorption of nutrients into the bloodstream. This leads to a reduced and delayed increase in blood glucose and less insulin is secreted. Oat days were introduced for patients suffering from type 2 diabetes mellitus some 100 years ago. A more recent study at a diabetes centre in Berlin showed that the insulin dose given to patients who required a large amount of insulin can be reduced by up to 30 percent after two oat days. The positive effect is observed for up to four weeks.

In addition, the beta-glucans demonstrate positive effects on digestion. The viscose substance from soluble fibre protects the intestinal wall from external irritation and soothes a sensitive stomach. The insoluble fibre regulates intestinal activity.

Coeliac disease

Whether people with coeliac disease can turn to oat products is not completely clear. With coeliac disease, the intestinal mucosa becomes inflamed after consuming gluten, meaning those affected must avoid food containing gluten for life. The most important components of gluten are prolamins and glutelin. Prolamins trigger the illness, in oats this is avenin, which forms only 15 percent of the gluten in oats. Therefore, the proportion of prolamins is barely higher than for millet, corn and rice which are considered to be gluten-free; in contrast, in wheat, rye and barley it is 34 to 50 percent.

Many studies on the tolerability of oats with patients with coeliac disease have shown that smaller quantities of oats are usually well tolerated. In Sweden and Finland, the consumption of up to 50 grammes per day by patients with coeliac disease is considered to be safe, but it must be „uncontaminated oats" that are grown for this purpose and which must not be contaminated with cereal containing gluten.

Based on the many possible uses in the fields of nutrition and medicine, the common or white oat has been named medicinal plant of the year 2017, but not without adding that its potential should be further explored through more research.

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