Report 2023

Society for Cancer Research
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Society for Cancer Research

The primary aims of the Society for Cancer Research are assuring, optimizing and developing holistic cancer therapies on the foundations of anthroposophic medicine and pharmacy.

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Editorial

Dear readers

In this issue, the Association for Cancer Research once again provides you with insights into its latest research activities. We have selected six projects from the 2023 publication list (p. 26) which we would like to present in more detail here. Most of these projects have been developed in collaboration with partner organisations, primarily universities. We are very pleased that the Association for Cancer Research is always receiving enquiries about dissertations. In this issue, we present three contributions based on projects by our doctoral students.

In a study conducted in cooperation with several breast cancer centres, the quality of life of the patients treated there was examined. It was found that even new chemotherapies continue to negatively impact the quality of life of breast cancer patients. Mistletoe therapy can help patients to improve their quality of life (p. 4).

The image-creating methods proposed by Rudolf Steiner have the potential to make the life forces of substances more comprehensible to a scientific audience. According to our results, these methods are able to differentiate between similar medicines with greater accuracy than standard chemical tests (p. 6).

Around three quarters of anthroposophic medicines are potentised, but their efficacy is often questioned by the media and scientists. A detailed analysis of the scientific literature has shown that many of these critics often do not stick to their own rules in ignoring important evidence for the efficacy of these remedies (p. 10).

We can also count the Research Institute of Organic Agriculture FiBL in Frick among our partner organisations. Mistletoe therapy has shown encouraging results in animals, especially horses and dogs, and the «One Health» concept adds a further advantage: mistletoe therapy is much more environmentally friendly than other anti-cancer drugs (p. 14).

For some years now there has been a research collaboration with the Federal University of Rio de Janeiro, Brazil, where a professor of pharmacy is conducting intensive research into mistletoe. New

results from this collaboration have enabled the European white mistletoe (*Viscum album* L.) to be recognised as a medicinal plant in Brazil, a country in which anthroposophic medicine is becoming increasingly important (p. 18).

When prescribing mistletoe therapy, the first question that arises is which mistletoe host tree is the «right» one for a particular patient. A doctor from the Association for Cancer Research has summarised the basic ideas of Rudolf Steiner and Ita Wegman on choosing the right host tree and found that the therapy regimen, which was previously considered complex, has a basic structure that is easy to understand (p. 22).

The Association for Cancer Research raises awareness of anthroposophic medicine and mistletoe therapy through high-quality research. We would like to thank you for making this possible and for supporting us on this path.

Professor Stephan Baumgartner

Head of Research and Development
Association for Cancer Research

Joining Forces for the Benefit of Breast Cancer Patients

The Association for Cancer Research (VfK) is cooperating with leading breast cancer centres to evaluate the quality of life of breast cancer patients under new therapies.

A good quality of life is important for everyone. Maintaining it can already be a challenge for healthy people, but this is particularly true for many cancer patients: the therapies required to treat them often lead to side effects making their everyday lives more difficult. With numerous new cancer therapies, the question therefore arises: how can successful tumour treatment be combined with the best possible quality of life?

As a rule, a new cancer therapy is first tested for its tumour-reducing effect At the same time, oncologists evaluate the tolerability of the new treatment but rarely take the patient's perspective into account. In 2018, for example, neoadjuvant chemotherapy[1], a new treatment regimen for breast cancer, was included in the German guidelines without having assessed its impact on quality of life from the patient's perspective.

The VfK then launched the QOLneo research project, which for the first time gave women receiving neoadjuvant chemotherapy for breast cancer a voice in the scientific discourse. Who better than the patients themselves to report on how they feel during treatment? The VfK recruited four renowned, mainly university breast cancer centres for this project and, together with the Society for Clinical Research in Berlin, coordinated the entire study. In previous studies, breast cancer patients cited persistent exhaustion, also known as «cancer-related fatigue», as the main reason for the impact on quality of life during their cancer treatment. In the QOLneo study, this was taken into account and the main focus was therefore on how the women's fatigue developed during neoadjuvant chemotherapy.

The results of the study published by VfK 2023 showed that, on average, the women's state of fatigue deteriorated in a clinically relevant way during neoadjuvant chemotherapy[2]. In particular, their physical exhaustion increased and their physical functionality was impaired by the chemotherapy. As a result, they answered questions such as «Am I able to work?» or «Can I enjoy my leisure time?» in the negative more and more frequently over the course of treatment. Mental and emotional exhaustion, on the other hand, increased to a lesser but still clinically relevant extent. The QOLneo study thus shows that despite improvements in patient care during breast cancer, the decline in quality of life is still a current problem.

The central question for the VfK is to what extent mistletoe therapy can contribute to improving the quality of life during breast cancer treatment. Both the experience of

doctors and the latest scientific data show that mistletoe therapy can improve quality of life during chemotherapy. For example, a review published in 2023 analysed 16 studies on mistletoe therapy for breast cancer[3]. On average, mistletoe therapy improved quality of life to the same extent as exercise. The efficacy of mistletoe therapy was always approximately the same under clinical trial conditions and was therefore reproducible. This reproducibility is an important argument for communication with authorities and oncologists. However, as breast cancer therapies continue to evolve, new studies on mistletoe therapy for breast cancer still need to be conducted.

The alliance with leading breast cancer centres has raised awareness of the continuing deterioration in the quality of life of patients undergoing chemotherapy. With QOLneo, the VfK has created the basis for a new study on mistletoe therapy in neoadjuvant chemotherapy for breast cancer. ■

References and footnotes

1. Chemotherapy is referred to as «neoadjuant» if it is carried out before the tumour is surgically removed. It is used to shrink the tumour. Until 2018, «adjuvant» chemotherapy was the rule for breast cancer, i.e. the tumour was removed first, followed by chemotherapy.

2. Pelzer F, Tröger W, Reif M, Schönberg S, Martin DD, Müller C, et al: Fatigue and quality of life during neoadjuvant chemotherapy of early breast cancer: a prospective multicentre cohort study. Breast Cancer 2023. DOI: 10.1007/s12282-023-01520-y 10.1007/s12282-023-01520-y.

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Development of New Detection Methods: Picture-forming Methods Differentiate Between Similar Drugs

The Association for Cancer Research (VfK) wants to establish picture-forming methods as a detection method for drugs. A VfK working group shows how two similar drugs can be differentiated from each other using these methods.

Over the centuries, people around the world have acquired a broad knowledge about the pharmaceutical processing of herbal substances. In these past times, substance had not only a measurable but also a tangible meaning. This tangible level was often described as *life force*. It was held responsible for the form, health and durability of the plant. This life force was supposed to be transferred from the plant to the medicine through the pharmaceutical process. But how can this subtle quality of medicines be made comprehensible to modern man or even integrated into the everyday laboratory routine of a pharmacy or a company?

At the beginning of the 20th century, Rudolf Steiner proposed so-called *picture-forming methods* for analysing life forces. They open up the possibility of analysing natural substances holistically and are used in addition to classical scientific analysis methods, which focus on the chemical properties of the individual components.

Picture-forming methods include *round filter chromatography and copper chloride crystallisation*. Here, natural substances are added to various metal salts. This mixture of substances produces specific patterns by separation on paper or by crystallisation. The aim of the research is to recognise the characteristic patterns of a substance, although research is still being carried out into the exact influences playing a role in pattern formation. To recognise the patterns, the observers' perceptions are recorded according to an ISO-standardised procedure, in addition to using computer-analytical methods.

A VfK working group investigated whether two similar medicinal products from apple mistletoe can be distinguished from each other using the above-mentioned picture-forming methods [1]. To produce the two medicinal products, the mistletoe plants were crushed and macerated in ethanol. The two methods differed in the way in which the plants were crushed and thus in the degree of crushing, and

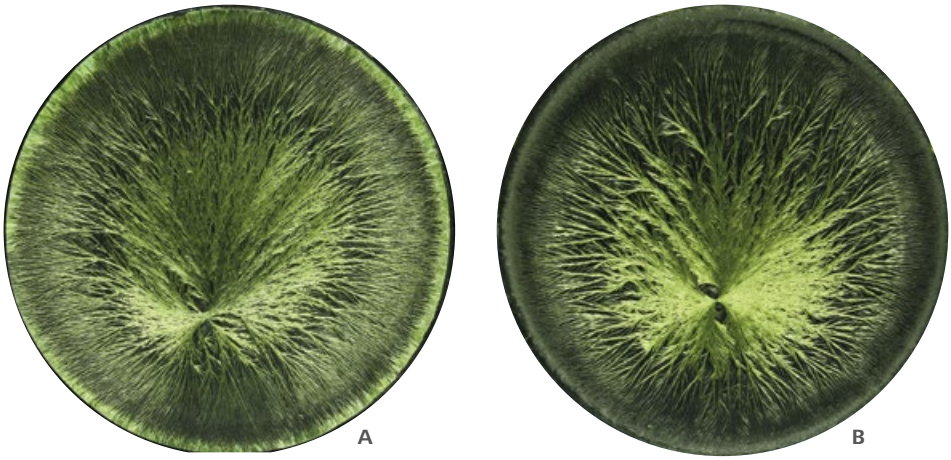

Fig. 1: Copper chloride crystallisation of the two investigated drugs A and B. The resulting patterns are clearly distinguishable for both drugs.

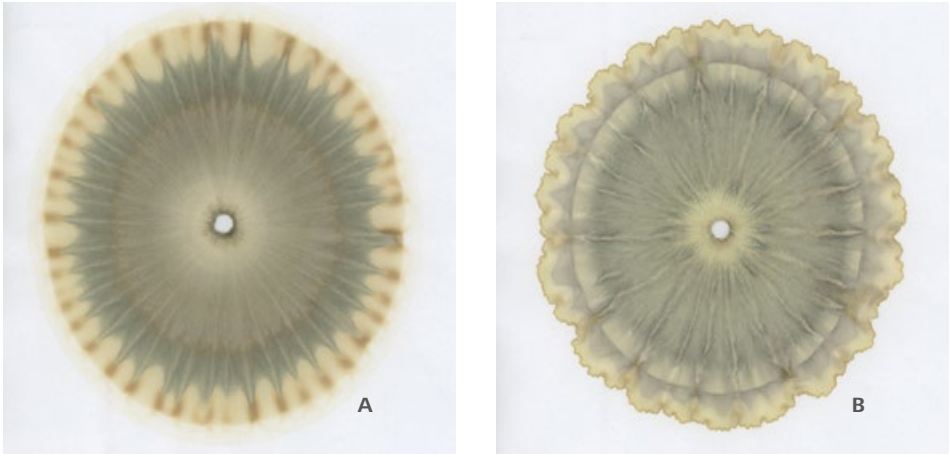

Fig. 2: Round filter chromatography of the two medicinal products A and B analysed. The resulting samples are clearly distinguishable for both drugs.

furthermore in the ethanol content and the duration of maceration. The results of the image-forming methods were compared with an established method, *high performance thin layer chromatography* (HPTLC). In HPTLC, the individual molecules of the drug are separated according to weight and charge. This method is specified by the authorities for the detection and quality control of natural substances and medicinal products.

By applying the picture-forming methods, the two drugs could be clearly distinguished from each other. With copper chloride crystallisation, for example, drug B exhibits recognisable needle lines (fig. 1B), which run outwards like fingers. Drug A, on the other hand, has less distinguished needle lines (fig. 1A). The circular chromatographs of the two drugs (fig. 2A and 2B) show clear differences in colour and shape.

The HPTLC method (fig. 3) gives less obvious results: similar substances are visible in the two drugs, except for two red bands for drug B. The differences are therefore mainly in the concentration of these substances, which is insufficient for a clear distinction.

This study was thus able to show that picture-forming methods can be used successfully as a complementary method when herbal medicinal products cannot be sufficiently differentiated from one another using established scientific methods. The VfK is currently conducting studies on further medicinal products and manufacturing conditions in order to strengthen the recognition of picture-forming methods. ■

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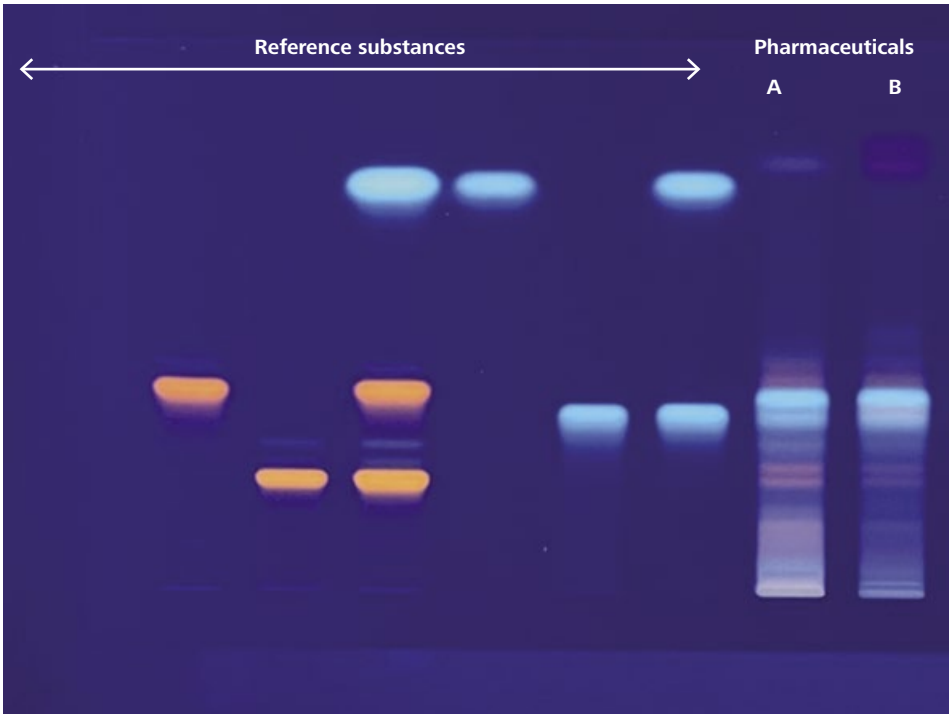

Fig. 3: HPTLC of the two investigated drugs A and B with reference substances. The concentration of the substances is lower in drug B, but mostly similar.

The Efficacy of Potentised Medicines Is Becoming Increasingly Demonstrable

The Association for Cancer Research (VfK), together with other researchers, shows that potentised medicines are being criticised in an unscientific way, although their efficacy can be documented increasingly better.

Scientific arguments play an important role in the development of public opinion. Social debates, such as questions about climate change or how to deal with pandemics, are primarily conducted with reference to scientific findings. If these findings are used to justify political decisions, they can become a power factor. Currently, the potentised medicines of homeopathy and anthroposophic medicine have once again been called into question in Germany and subsequently also in Switzerland.

Potentised medicines challenge the current textbook assumption that medicines can only exert their effect in the human body via a material lock-and-key principle. According to this principle, the drug molecules exert their effect by interacting with the human cells like a key with a lock. However, potentised medicines, such as Arnica D30, are diluted to such an extent that no molecule of the arnica plant is detectable in the preparation. For this reason, some scientists deny the ability of potentised medicines to exert a therapeutic effect [1]. Based on these arguments, some politicians are calling for the removal of potentised medicines from the health insurance benefit catalogue. But how well founded is this prevailing opinion of scientific circles against potentised medicines?

Researchers from the Universities of Bern, Witten/Herdecke and the VfK show that the concept of potentised medicines is criticised in academic journals, in the vast majority of cases, in an unscientific manner [2]. The working group searched scientific databases for publications arguing against the concept of potentised medicines. The first finding was that, in contrast to the strong presence of criticism of potentised medicines in the media, potentised medicines are hardly ever discussed in the academic world and are rarely dealt with scientifically: between 1959 and 2020, only 15 publications were published on the subject, five of them in the 1990s and five in the 2010s. Only three of the 15 articles adhered to established scientific standards by describing the methodology underlying

their arguments, and then discussing the pros and cons of their findings in a formal discussion. The working group concluded that the concept of potentised medicines has not been discussed in sufficient depth in the academic world.

Systematic reviews now provide evidence of the efficacy of potentised medicines in humans, animals and plants. Reviews play an important role because they summarise all publications on a specific topic according to systematic, internationally recognised criteria and thus reflect the current state of knowledge. For example, a working group from Germany and the USA used such a review to assess the clinical studies on potentised medicines which had repeatedly been called into question over the years. After a thorough review of all the data, the working group concluded the quality of these clinical studies on potentised medicines to be good enough to prove the efficacy of potentised medicines with certainty[3]. Further reviews on potentised remedies have been available through the website of the Institute of Complementary and Integrative Medicine (IKIM) at the University of Bern since 2023[4]. Professor Stephan Baumgartner,

board member of the VfK and deputy director of IKIM, played a leading role in providing this information. The reviews show that in 77 to 95% of all high-quality studies, potentised medicines work in animals and plants, depending on the field of research. However, the question of how they work requires further investigation.

Studies on plants make it possible to test physical hypotheses, e.g. how Arnica D30 can have a therapeutic effect even without the presence of detectable molecules. Many people will already have heard the catchphrase «memory of water», which is used to describe the properties of water enabling it to store the properties, for example, of Arnica, even when it is no longer physically present. But what does this memory actually mean? Professor Baumgartner is working with researchers from the VfK and the Universities of Bern and Witten/Herdecke to test the hypothesis whether physical or other forces or fields can explain the effects of potentised medicines. If this hypothesis is confirmed, the prevailing opinion on potentised medicines will have to be revised. ■

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Mistletoe Therapy and «One Health»: Animals Are Treated Successfully, too

The Association for Cancer Research (VfK) supports the Research Institute of Organic Agriculture (FiBL, Frick), which has developed a nature-friendly, effective cancer therapy with mistletoe extracts for animals, among other things, to better fulfil the concept of «One Health».

The Greek physician Hippocrates (ca. 460 BC to 370 BC) long ago drew our attention to the fact that public health depends on a clean environment. In the middle of the 19th century, German doctor Rudolf Virchow recognised the connection between animal and human medicine. He defined the term «zoonosis» to describe a disease that can be transmitted from animals to humans. Today, the concept of «One Health» describes the realisation that the health of humans, animals and the environment are closely interrelated and that, for example, human health cannot be achieved if animals or the environment are affected negatively by the healing process.

The importance of «One Health» has increased significantly in recent years due to various health crises, such as the Covid-19 pandemic or the increase in antibiotic resistance, as the interactions between humans, animals, plants and our environment are increasingly affected. In order to meet these challenges, interdisciplinary cooperation between human medicine, veterinary medicine and natural, environmental and food science has become necessary to promote human and animal health, and to develop a positive impact on the environment through «One Health».

In veterinary medicine, mistletoe therapy has proven successful in the treatment of various types of cancer in recent years. In principle, all treatment methods used in human medicine can be used therapeutically, but chemotherapy in particular must be viewed critically in pets. With these often highly toxic drugs, it is hardly known whether and to what extent there is a risk for pet owners and the environment. With the faeces of treated animals, chemotherapeutic agents are released into the environment in an uncontrolled manner, endangering soil and water quality and thus the health of other species and ecosystems. Likewise, chemotherapy

in particular often causes serious side effects in animals, which can lead to a considerable impairment of their quality of life. Both is not the case with mistletoe therapy. From the perspective of «One Health», mistletoe therapy therefore has less of an impact on nature; thus it can be categorised as a more sustainable and environmentally friendly option. It has a smaller ecological footprint during production and use, emphasising the importance of environmental awareness in maintaining the health and well-being of the planet and its inhabitants [1].

For 20 years now, FiBL, in cooperation with the VfK, has been investigating the efficacy of applications of *Viscum album* L. in tumour diseases of dogs, cats and horses, and has also conducted controlled studies. A systematic review has also been carried out to evaluate the use of mistletoe extracts in pets, which also included controlled clinical trials. The effectiveness of mistletoe extracts was most pronounced in the treatment of melanomas, sarcomas, and mammary carcinomas in dogs, and in the treatment of sarcoids in horses [2] (Fig. 1).

In a next step it is planned to test whether mistletoe therapy can achieve a reduction in pain medication in animals while maintaining their quality of life. Mistletoe therapy would thus further reduce the environmental impact of medication. ■

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Fig. 1: A mare suffered from a large sarcoid under the left eye (a), which has virtually disappeared thanks to oral mistletoe therapy (b).

Recognition of White Mistletoe as a Medicinal Plant in Brazil

Professor Carla Holandino from the Federal University of Rio de Janeiro and the Association for Cancer Research (VfK) published results to achieve regulatory recognition of European white-berried mistletoe as a medicinal plant in Brazil. This step will enable the production of medicines from white-berried mistletoe in Brazil on a larger scale and thus facilitate access for Brazilian patients.

After the aerospace industry, the pharmaceutical industry is one of the most regulated sectors of the economy. For a plant to be processed as a medicinal product in a given country, it must first be recognised as a medicinal plant by the authorities. This recognition takes place via regulations in which quality requirements pertaining to raw materials and the manufacturing steps of numerous medicinal products are laid down.

Brazilian pharmacists want to be less dependent on drug imports from Europe and instead establish their own production in the country. Convinced of the importance of mistletoe therapy in cancer treatment, Professor Holandino has been campaigning for 10 years to publicise European white-berried mistletoe in Brazil. The VfK has supported her in her projects from the very beginning. As a visiting scientist in Arlesheim, Professor Holandino and VfK researchers collaborated, for example, to analyse the material-chemical components of anthroposophic mistletoe preparations from various host trees with a high degree of accuracy [1]. The official recognition of white-berried mistletoe is part of this co-operation, which aims to improve the understanding and availability of mistletoe preparations in Brazil, a country in which anthroposophic medicine is becoming increasingly important.

In order for white-berried mistletoe to be officially recognised, its appearance and chemical constituents must be described in such detail that this information can be used to verify its quality for its subsequent use in the manufacturing of medicinal products. The necessary laboratory analyses were carried out on VfK apple mistletoe by Professor Jane Manfron's working group at the University of Ponta Grossa in southern Brazil [2]. The described properties of mistletoe range from plant structures recognisable to the naked eye to micro-

Fig. 1: Microscopic cross-section through a mistletoe branch. The nine vascular bundles are clearly visible. The dark colouring in the centre of the vascular bundles indicates phenols.

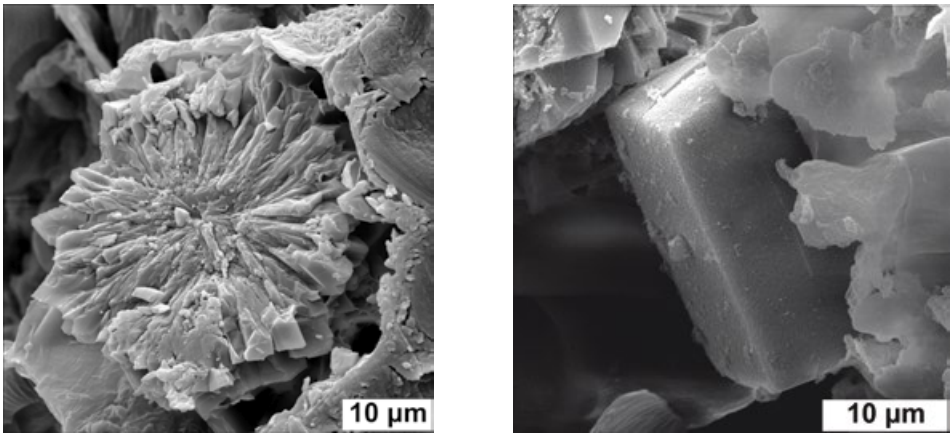

Fig. 2: Different types of calcium oxalate crystals in cells of a mistletoe branch: on the left a druse, on the right a prismatic crystal.

scopic structures (fig. 1). For the first time, small calcium oxalate crystals were detected in mistletoe using X-rays (fig. 2). These crystals can be used to differentiate between different plant genera. Manfron's team also used plant staining to determine which parts of the plant contain various chemical constituents of mistletoe. Phenols were found in the mistletoe stem and leaf (fig. 1, dark inner ring), but not in the berries. Proteins, fats, multi-chain sugars and starch could be detected in sometimes clearly recognisable patterns. Alkaloids, which are sometimes erroneously cited in the literature as mistletoe ingredients, could not be detected. With this information, pharmacies and drug manufacturing companies in Brazil can prove to the authorities that they have produced their drugs with the correct source plant.

Professor Holandino will also be able to use this information to continue her research into medicines made from white-berried mistletoe. She and her working group are already developing medicinal products from mistletoe plants and are thus approaching the goal of providing an increasing number of Brazilian patients with access to mistletoe preparations. ■

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Anything But Arbitrary: the Choice of Host Tree in Mistletoe Therapy

The Association for Cancer Research (VfK) has set itself the task of regularly re-examining Rudolf Steiner's original statements from different perspectives. For example, the anthroposophical choice of host tree for mistletoe therapy was found to be in line with the basic concepts of other historical medical traditions.

Anthroposophical mistletoe preparations are named after the host trees, as the properties and material composition of the mistletoe differ depending on the tree on which it grows. This allows for an individualised application taking into account the entirety of the cancer patient's body, vital state, mind and soul. According to Rudolf Steiner, mistletoe works by utilising the properties of the host tree for human therapy. He assigned the four original host trees of mistletoe therapy - oak, apple tree, pine and fir (fig. 1-4) - to different constitutional characteristics of the human being and different regions of the body. But what was his rationale in doing so?

Sarah Monz, a medical doctor and member of the VfK, researched the background of Steiner's suggestions how to choose the right host tree[1]. In her investigations, she found the concept of polarity to be decisive for the categorisation of mistletoe. This is not only known in anthroposophy, but in almost all philosophical traditions in the world, e.g. as the Chinese «yin» and «yang». Even in traditional European medicine going back to Paracelsus and ancient Greek and Persian medicine, the world is divided into opposites or polarities complementing each other to form a whole and which cannot exist without each other. One can also speak of a «solar» and a «lunar» principle, which goes far beyond the idea of «male» and «female». For Johann Wolfgang von Goethe, polarity was the most important organising principle of the physical world, as it describes how something is integrated into the complex network of relationships of all living things: giving or taking, hot or cold, dry or moist, affinity to sun and light or to earth and shadow.

The four host trees can be categorised according to their «solar» or «lunar» characteristics. At first glance, we can distinguish between the two groups of deciduous and coniferous trees.

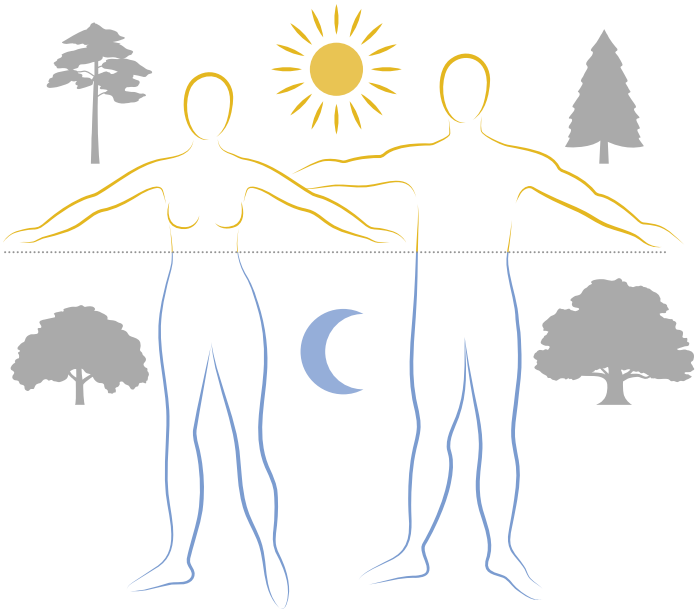
Deciduous trees are characterised by dense, shady treetops, broad leaves receiving light, and nourishing fruit. Thus, this group of trees can be assigned to the dark, cool, earth-facing and nourishing («lunar») pole. The apple tree embodies the max-

Fig. 1: Oak with mistletoe

Fig. 2: Apple tree with mistletoe

Fig. 3: Pine with mistletoe

Fig. 4: Fir tree with mistletoe



The specific allocation is shown in simplified form in the following diagram:
Based on the concept of polarity, Rudolf Steiner's information on the choice of host tree can be easily related and understood even beyond European countries.

imum variant, while the lunar characteristics of the oak are less pronounced (tall, sky-facing growth, smaller, dry fruit).

The tall conifers, on the other hand, with their pointed needles and woody cones that «radiate» the light, epitomise the bright, light, hot, heaven-facing pole. Here we find the maximum expression in the pine tree with a light crown, the slender and tall trunk, the thin and pointed needles and wood rich in essential oils that burns hot and brightly. Although the fir is similar to the pine as a conifer and belongs to the «solar» pole, it also has lunar characteristics with a denser, shorter and softer needle structure and water-rich wood.

Rudolf Steiner now categorised the host tree preparations into different human «constitutional types» and body regions (handed down in the writings and notes of Ita Wegman, Ludwig Noll and others). Their categorisation according to polarities can already be found with Paracelsus, but is also essential in traditional Chinese medicine, for example.

Rudolf Steiner recommended mistletoe from the coniferous, «sky reaching» trees for the treatment of tumours above the diaphragm. They have an affinity to the nerve-sense pole and their composition is rich in viscotoxins while being poor in mistletoe lectins.

The mistletoe growing on the more «earth-bound» deciduous trees, exhibiting a high content of mistletoe lectins and a stronger affinity to the metabolic limb system, is recommended for tumours below the diaphragm.

The further allocation is made according to the constitution of the patient, whereby a distinction is made between «male» and «female» constitutions: above the diaphragm, fir mistletoe is used for men, pine mistletoe for women; below the diaphragm, oak mistletoe for men and apple tree mistletoe for women. It should be noted that Ita Wegman explicitly stated that this gender-specific allocation should not be made according to the biological sex of a patient, but according to the respective constitution. ■

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