

Garlic, turmeric and the like against coronavirus?

Do antiviral herbs really exist? On 2 April 2020 a team of researchers from various universities in Vietnam published the results of biochemical simulations which “*suggested that*” 17 compounds found in **garlic** are “*a valuable natural antiviral source, which contributes to preventing the invasion of coronavirus into the human body (1).*” Which plants help prevent or fight viral infection? Does this really work? In 2010 the World Health Organisation (WHO) had already called upon researchers to explore these questions. What results did their devices, electron microscopes and analyses reveal?

The WHO’s questions were definitely justified: Ayurvedic medicine, Traditional Chinese medicine and other successful naturopathic systems have a body of knowledge about defensive weapons against viruses. Historically, naturopathy has helped to prevent or heal many cases of pneumonia, flu and other viral infections. But yesteryear’s healers and doctors did not know that viruses and bacteria were responsible for the patient’s condition. They only saw the symptoms of a disease: fever, cough, cold, diarrhoea, dyspnoea, etc.

The discovery of viruses

In 1931, for the first time, electron microscopy brought into view the destructive activity of pathogenic viruses. A magnification of two million times made a viral invasion visible. In addition, the body’s defence army, composed of scavenger cells, killer cells and other defence weapons, could now be closely tracked by the human eye. Killer cells could be seen to be destroying those cells of our body which had been invaded by viruses, which in turn had been using these cells for their own reproduction. These treacherous viruses penetrate our cells and reprogramme them so that they will reproduce their viral invader.

This mechanism of those types of viruses which have been tested is prevented by a certain spice, more precise the yellow compound of **turmeric**. In January 2018, a team of researchers from two universities in Taiwan published their findings regarding the antiviral potential of curcumin (2). Curcumin has two different ways of preventing viral reproduction within host cells. (see graphic). It prevents the virus from penetrating or attaching itself to the cell, and it also prevents viral replication within the cell. In this way the reproduction (technically termed replication) of the virus is halted.

Curcumin and others against coronavirus?

Are the viral defence mechanisms of curcumin and others also effective against the SARS-Co-V-2 coronavirus? Research at universities with a focus on traditional natural remedies is running at full speed to produce biochemical and clinical proof. On 8 April 2020 Utkal University in India published a computer simulation which implies “*the possibility*” that **curcumin, found in turmeric**, and catechin, a substance found in e.g. **green tea** at 30-40%, could be effective against the current spread of the coronavirus (3). Catechin is also present in several fruits, for example apples, apricots, pears, blackberries, strawberries, raspberries, black currants, peaches, plums, quinces, sour cherries, gooseberries, sweet cherries and grapes (4).

Garlic in the fight against viruses

Garlic has also been analysed. Research using the molecular docking technique conducted at various universities in Vietnam “*suggests*” that 17 compounds found in garlic fight the coronavirus in the same way as curcumin fights some types of viruses: it prevents the coronavirus from invading

our cells and its replication within our cells. This research was undertaken with essential garlic oil extracted from fresh garlic by distillation (1).

A study conducted in 2001 shows the effects of garlic on a common cold, which is probably the most widespread viral disease worldwide. Over a time span of 12 weeks, 146 participants were administered daily with either one capsule of a garlic supplement (containing 180 mg Allicin) or one capsule of a placebo. During the trial period 24 cases of cold occurred in the group which had taken the garlic supplement and 65 cases of cold occurred in the placebo-group. If a person from the placebo-group caught a cold it lasted on average for five days. In the garlic-group a cold lasted on average for 1.5 days. The results of this trial show the preventive effect of garlic as well as its strengthening influence on the immune system (5).

However, this reputable research on encapsulated garlic is tinged since on its website its manufacturer sells 30 capsules for 39.95 dollars. Studies are expensive. This is why nowadays most such studies are financed by manufacturers of dietary supplements and their studies are usually done on a component or an extract of a plant, which might not have an equal effect to its natural form. Studies conducted by governmental institutions or foundations which only have humanity's best interests at heart could show that the natural plant might have more effect than a single extracted agent thereof.

The tendency to doubt the evidence from these financed studies of the effect of garlic is countered by a study from professor Kyu Hang Kyung PhD, doctor of nutritional science at Sejong University in Seoul, capital of South Korea. She concludes that **wild garlic** (*Allium ursinum*) and **garlic** (*Allium sativum*) are inhibitory against all tested microorganisms such as bacteria, fungi, viruses and parasites.

This study also clarifies that an extract from the bulb is not necessary. Fresh garlic and wild garlic are effective too. When exposed to heating for a prolonged period of time some of these anti-microbial components volatilise or change. However, combined with oil the main anti-viral agent Allicin changes into so-called Ajoene which, in vitro, has proven to be even more aggressive against the tested viruses than Allicin (6) (7).

Another study from Mexico shows that garlic generally appears to enhance the functioning of the immune system (8).

In order to preserve the immunity-enhancing potency there are two options: chopped bulbs can either be added to the salad or they (or a portion thereof) can be added to a meal sprinkled with oil shortly before the end of the cooking process. In pandemic times this also encourages odour-sensitive people to keep their minimum distance of 1.50 m.

Ajoene can be produced by making **wild garlic oil** or **garlic oil**. All you need to do is blend wild garlic, garlic, salt and olive oil. This is especially useful for the green leaves of wild garlic as they are only available for about three months of the year. For the best taste it is advisable to pluck the leaves before the plant is flowering. Wild garlic oil can then be stored in the refrigerator for several months.

Immunity enhancing vegetables and herbs

According to scientific research **common onions** (9), **shallots** (10) and leeks also help the body prevent certain viral infections. Additionally, **leeks** (11) proved to be an effective vegetable against the coronavirus SARS-CoV, as was discovered in 2002.

Traditional herbs for Italian dishes, such as **rosemary** (12, 13) and **thyme** (14), as well as **ginger**

(15) also contain substances scientifically proven to enhance our immune system against the tested viruses.

Some of the herbs used for infusions equally possess outstanding antiviral properties, for instance **tulsi**, also known as holy basil (*Ocimum sanctum* Linn), **rock rose** (*Cystus incanus*) and **liquorice root** (*Glycyrrhiza glabra*).

Tulsi enhances the immune system

Ayurvedic medicine has historically treated respiratory diseases with **tulsi**, also called holy basil. In November 2005 an article by a team of Taiwanese researchers published in the journal *Clinical and Experimental Pharmacology & Physiology* showed that tulsi prevents 5 studied types of viruses from infecting cells and stops viruses from multiplying in the cells (16). Half a decade later this in-vitro test was followed by a human trial, a clinical study.

In 2011, in a double-blind clinical study with tulsi conducted by the All India Institute of Medical Sciences in New Dehli, India, a group of 24 healthy adults was divided into two groups. One group received 300 mg of a tulsi basil extract daily on an empty stomach, the other group received a placebo. None of the participants knew whether they would receive the placebo or the tulsi extract in the identical looking capsules. After four weeks, repeat blood samples were taken from the participants. Test results showed that in the group which received the tulsi extract there was a significant increase in natural killer cells and T-helper cells. Both types of immune cells are involved in the body's fight against viruses. In addition, the blood levels of interleukin IL-4 had increased in the samples of the members of the Tulsi group - an indicator that their immune systems had been strengthened (17).

European black elderberries are effective against influenza viruses

It is known that viral infection can lead to so-called super-infection - an infection of the lungs caused by bacteria. In 2011 the Institute for Medical Microbiology at the Justus Liebig University Giessen examined the effect of a liquid extract from **black elderberries** (*Sambucus nigra*) both on influenza A and B viruses and on 4 types of bacteria that are responsible for infections of the upper respiratory tract. The research showed that the liquid extract from black elderberries has antimicrobial efficacy against the bacteria examined and that *"The liquid extract also displays an inhibitory effect on the propagation of the human pathogenic influenza viruses (18)."* As early as 1995 a team of researchers from the Hebrew University of Jerusalem published a double-blind study on an elderberry extract. 90% of the patients with an "Influenza B/Panama"-infection who took an elderberry extract **completely recovered after only 2-3 days**. The patients who received a placebo needed at least 6 days to recover (19).

Another study showed that an extract from black elderberries activates a healthy immune system by producing more inflammatory cytokines. (20) For this reason, cautious therapists devoted to herbal medicine recommend using black elderberries only for prevention or at the beginning of a disease with flu symptoms. **In case of an advanced stage of infection with the novel coronavirus they advise against consuming elderberry compounds** since an infection with the SARS-CoV-2 coronavirus could reach a certain stage where the production of inflammation-promoting cytokines rise drastically. At this stage taking black elderberry preparations would likely exacerbate the condition (21).

Due to existing reports of poisoning by fresh juice of elderberry species, black elderberries should only be consumed ripe or as a syrup or extract. Unripe elderberries contain Sambunigrin which causes poisoning and can release the toxic hydrocyanic acid, which in turn can cause nausea and

vomiting. Therefore, **use only ripe fruits in the kitchen and bring them briefly to the boil.** This makes them digestible. And do not cook them for too long. This would destroy the vitamin C they contain.

Black currants

Black currant extract prevented the multiplication of influenza viruses A and B in a cell culture. The infection of the cells was completely gone after they had been exposed to black currant extract for 6 to 9 hours. This was shown by a trial at Asahikawa Medical University in Japan in 2003 (22). In 2012 tests with other types of virus were carried out at Tohoku Medical and Pharmaceutical University in Japan. One of the results was that the extract inhibited viral replication by over 50% at a blackcurrant concentration of less than 1% (23).

In a trial conducted by scientists from the University of Tübingen mice were infected with the influenza virus and then administered an extract from the **leaves of the black currant shrub.** As a result, the number of viruses decreased. The study states: *“Furthermore, we were able to show that the effect mechanism is based on the fact that the extract prevents the virus from penetrating the host cell (24).”* The Japanese and German researchers conclude that **black currants** (*Ribes nigrum* L) as well as the leaves of the shrub are very effective against various viral strains that cause respiratory diseases.

Are experiments with viruses in cell cultures applicable to humans?

Are experiments with viruses in cell cultures and with animals at all applicable to humans? The history of the invention of penicillin shows why researchers conduct experiments with cell cultures and why the answer to this question is often yes. In September 1928, the Scottish bacteriologist Alexander Fleming found a Petri dish containing mouldy bacterial cultures in his laboratory. He had just returned to his laboratory from summer vacation. The bowl had been left unwashed in the sink. Before leaving Fleming had experimented with the *Staphylococcus aureus* bacterium. He saw that the green mould had destroyed the bacteria and he managed to extract the bacteria-killing substance from the mould. Fleming found that *“as a general rule, penicillin does not damage body cells, but kills a very large number of dangerous pathogens.”* Penicillin was born. However, its big moment came almost two decades later after other researchers took up Fleming's findings and developed a method to produce penicillin (25).

Rock rose trial at the Charité university clinic in Berlin

Rock roses (*Cistus incanus*) grow in the Mediterranean region and have long been used in traditional medicine in Southern Europe to combat flu-like infections, among other things, without any known side effects. References to the medicinal use of the bush date back to the 4th century BC. In 2007, aware of the danger posed by influenza viruses which kill thousands every year, researchers from the Institute of Molecular Virology at the University of Münster examined a polyphenol-rich extract of rock rose (called CYSTUS052) for its effectiveness. They infected cell cultures with various influenza viruses and found that the extracted components of rock rose effectively prevent the virus from entering the cells, and thus significantly fewer offspring of the virus are produced. In addition, influenza viruses were unable to develop resistance to the rock rose extract. This means that CYSTUS052 also prevents the reproduction of the mutated offspring of the influenza virus (26). Antiviral influenza vaccinations and medicines are often rendered ineffective or only partially effective by the mutation of the virus to new forms.

In 2009 a clinical trial on rock rose was carried out at the Charité in Berlin, one of the largest university hospitals in Europe. There doctors and scientists research, heal and teach at the highest international level. Over half of the German Nobel laureates in medicine and physiology come from the Charité, among them Robert Koch. In the placebo-controlled study a randomly selected subset of the 160 patients with upper respiratory tract infection received the rock rose extract CYSTUS052. Many of the cold symptoms and also the inflammatory marker C-reactive protein decreased significantly in the rock rose group, while in the placebo group there was a less significant improvement (27).

In 2013 a team of virologists and immunologists from the universities of Münster and Tübingen published the following about their research on rock rose extract and on an extract from the leaves of the black currant: *“The main effect might be called physical rather than unspecifically anti-adhesive. This also resonates with the general antiviral effects against a wide variety of viruses, and it has another advantage: the pathogens cannot escape the relatively unspecific attack by simple mutation. As results show, no resistant influenza pathogens could be found after treatment with Cystus052. Thus it can be said that plant products with an anti-adhesive effect according to the WHO Call to Action represent a promising option for the antiviral treatment of respiratory viruses. Due to the low risk of side effects, not only therapy but also prophylaxis [prevention] might be considered (28).”*

Do these plants also work effectively against the new COVID-19 virus?

The crucial question is: are these plants also effective in preventing the novel coronavirus infection, or could they even provide a cure for the disease?

Prof Dr Andreas Michalsen, holder of the endowed professorship for clinical naturopathy at the Charité in Berlin, answers the question as follows: *“**Sage, rosemary, thyme, bay leaves, liquorice, wild garlic and garlic, also turmeric, mustard oil, propolis and especially the epigallocatechin contained in green tea show antiviral effects. Now the COVID-19 virus is also new for naturopathy, i.e. it cannot be automatically assumed that the antiviral effects shown in studies on SARS or MERS are transferable to COVID-19. However, since these measures are safe and basically also strengthen the body, I recommend them (29).**”*

In addition, Professor Michalsen also recommends meditation to strengthen the immune system. Studies have shown that for those who practice meditation regularly the antibody response after vaccination is stronger and more effective. In addition, relaxation techniques such as meditation, yoga, tai chi and breathing exercises alleviate anxiety which weakens our immune system.

Dr Richard J Davidson PhD and Prof Jon Kabat-Zinn, the two most prominent representatives of contemplative neuroscience, showed in a 2003 study that the positive effects of meditation on our emotional life also improve the immune system. After 8 weeks of regular practice, significantly more antibodies were found in the blood samples of a group of meditators following a flu vaccination than in the blood of a control group. It emerged that the better a study participant felt due to their meditation practice, the stronger was the activity of their brain's left hemisphere and also correspondingly higher was the number of defence cells in their blood (30).

Professor Michalsen likes to recommend naturopathic measures, because *“for most naturopathic therapies it is known that they strengthen the body's immune system.”* (29) And a strong immune system is the only thing which currently manages to defeat COVID-19 effectively. This is shown by those who recovered and by those who have the virus measurably to a certain extent but who do not exhibit any symptoms of the disease. The full recommendations of Prof Dr Andreas Michalsen for

strengthening the immune system can be found here: <https://www.carstens-stiftung.de/artikel/prof-dr-andreas-michalsen-jetzt-die-immunabwehr-durch-den-lebensstil-positiv-beeinflussen.html> »

A free, simple and proven guide to learning meditation can be found here: <https://www.srichinmoycentre.org/meditation/homestudy> »

The Ayurvedic home remedy Kadha - an effective prevention?

An indication that herbs and spices could play a part in preventing and managing a coronavirus infection came on 14 April 2020 from the Bhabha Atomic Research Centre in Mumbai (formerly Bombay), India. The computer graphics from the "molecular docking" computer simulation used in the trial show that **ashwagandha, black pepper, cardamom, clove, garlic, ginger, guduchi, tulsi, lemon and turmeric (curcuma)**, contain active ingredients which prevent the coronavirus from entering the cell. These herbal products are the ingredients of **Kadha**, a home remedy used mainly in India for the prevention and treatment of respiratory diseases such as cough, cold and flu.

The research group writes: *“Our study has identified an array of phytochemicals present in these herbs which have significant docking scores and potential to inhibit different stages of SARS-CoV-2 infection as well as other coronavirus target proteins. ... This preparation can boost an individual’s immunity and inhibit the viral severity by interfering at different stages of virus multiplication in the infected person (31).”*

A somewhat bold choice of words, based on a computer simulation. Ayurvedic doctors will in fact observe results on a case-by-case basis and at certain stages of infection. Generally, very experienced Ayurvedic doctors prescribe blends of herbs, which they put together *after* the examination and specifically *for* a patient and their current condition. Such statements can certainly only be made by researchers in a country such as India where people have had many positive experiences with Ayurvedic medicine, and particularly with the home remedy Kadha. Ayurveda is not just a wellness program for the wealthy in India, but an integral part of public health care. Almost all cities in India have at least one state-run Ayurvedic hospital, a total of around 2,500 nationwide. Ayurveda is an effective medical system recognised by the World Health Organization (WHO). Prof Dr Andreas Michalsen writes in his bestseller *Healing with the Power of Nature* that the Ayurvedic doctors with whom he works can often alleviate the ailments of patients whom Western naturopathy could no longer help.

And sometimes it is just a blend of herbs which gives the additional relief or healing. There is a scientifically researched example of this. In India, **turmeric** is usually mixed into the food along with ground **black pepper** and **butterfat** (ghee) or oil. Scientists found that adding pepper to turmeric resulted in up to 2000% more curcumin in the blood than if the food was seasoned with turmeric alone (32). This is due to the hot component of pepper called piperine which prevents curcumin from being bound to water in the liver so that it is therefore not excreted (33). **Adding fat** led to an additional increase of 7 to 8 times more curcumin in the blood. This is due to the fact that the turmeric compounds combine with fat and are thus directly absorbed by the lymph. In this way the liver, which normally excretes many of the components of turmeric to, is bypassed (34).

Liquorice root used in China against COVID-19

At the Luton & Dunstable Hospital NHS Foundation Trust in the UK, laboratory tests with the coronavirus which caused respiratory diseases in 2002 and subsequent years revealed that glycyrrhizin proved to be the most effective antiviral component of liquorice root (*Glycyrrhiza glabra*). Glycyrrhizin is the sweetening molecule of the root and tastes about 50 times sweeter than

cane sugar. Hence, only half a teaspoon of the granulated root is sufficient to sweeten a litre of tea (35). In Ayurvedic teas liquorice root is often used for sweetening, but also as an effective medical ingredient. Another advantage: this sweetener does not cause dental caries.

Liquorice root is also an effective main component of the decoction *Qingfei Paidu*, which was successfully used in China to treat the SARS-CoV-2 coronavirus. *Qingfei Paidu* contains a total of 21 different herbs, 16 of which act to strengthen the pulmonary meridian. Traditional Chinese medicine is considered to heal by increasing certain energies within organ systems and meridians, with a resulting activation of the body's self-healing powers. In normal to severe cases which were treated with *Qingfei Paidu*, one result seen was a 70% increase in the number of lymphocytes in the immune system of the patients. Practical experience with the *Qingfei Paidu* decoction in clinics has now made it part of the official diagnosis and treatment plan of the Ministry of Health against pneumonia caused by the new coronavirus in China. The published study shows that *Qingfei Paidu* accelerated the healing process in 90% of the patients (36).

However, in other patients different Chinese herbal blends were more successful. According to adherents, traditional Chinese medicine (TCM) is effective because it detects the specific energy weaknesses of the individual patient and administers the appropriately adapted herbal blends.

Homoeopathy too weak against viruses?

Homoeopathic associations and physicians who treat patients in many countries, for example India, report considerable success in the treatment of symptoms caused by the new coronavirus (37). In 1973, due to the success of homoeopathy observed in cases of infections and most serious diseases experienced by Indian citizens, the Indian Government recognised homoeopathy as one of the national medical systems. The Central Council of Homoeopathy was set up to regulate training in and practice of homoeopathy. Since then only qualified, registered homoeopaths have been allowed to practice homeopathy in India. There are currently more than 200,000 homoeopathic doctors in India with the number growing annually (38). In India many orthodox medical practitioners, Ayurvedic doctors and homoeopaths work together and send patients to each other. They assess which treatment method promises the most likely cure for the patient. The Central Council for Research in Homoeopathy in the Indian capital New Delhi has also launched a project to research the efficacy of homoeopathy against epidemic diseases (39).

According to reports from the Chinese Association of Homoeopathic Physicians, led by Dr Aron To, president of the Hong Kong Association of Homoeopathy, homoeopaths have been intensively searching for a cure which corresponds to the most common symptoms of the current coronavirus infection. More than 30 homoeopathic physicians in China identified one major remedy by matching the symptoms of their patients. And two others were also indicated. However, usually only an experienced doctor can identify the right medicine for a given individual (40).

Those doctors working with homoeopathy point out that each patient must be considered individually. The specific symptoms of the disease considered alongside the individual's congenital constitution mean that each person may need a different homoeopathic remedy to cure the disease. In the course of treatment, additional homoeopathic remedies might also be required to help restore health. During the international medical congress "United to Heal", held online from 9 to 19 April 2020, it was shown that this pandemic does not have one genius epidemicus (a main remedy), but up to 30 homoeopathic remedies are indicated for combating individual symptoms of the disease, depending on the stage of the disease and partly also depending on the country and region. The participants of the medical congress report that they have already successfully treated hundreds of COVID-19 infections, including those with pre-existing conditions, with these 30 drugs (41).

Prevention with homoeopathy

Prevention with homoeopathic remedies is also possible, whether you feel healthy or already suffer from a chronic disease. For this, an experienced homoeopath must conduct an assessment (anamnesis) to record the sum of all your congenital physical and psychological characteristics (constitution), as well as previous illnesses and current signs of illness (symptoms). Based on this assessment the homoeopath will be able to find the appropriate homoeopathic remedy for you.

Homoeopathy and epidemics

In his webinar (<https://www.homeopathycenter.org/covid-19-pandemic-webinar-dr-andre-saine> ») of 4 April 2020, Dr André Saine ND of the American Institute of Homoeopathy, a renowned teacher of homoeopathy in Canada, the United States and Europe, observed that during the Spanish flu of 1918 the mortality rate of patients who had pneumonia and were treated with homoeopathy was 8 times lower than that of patients who had pneumonia and were treated with conventional medicine (42). Another convincing document is by Dr Anton Rohrer from Austria who compiled information from historical documents and summarised the successes of homoeopathy in previous epidemics. Dr Rohrer has been a lecturer in homoeopathy at the Medical University of Graz since 1996 (43). Some of this historical facts are also published in the article *Treatment of Epidemics with Homeopathy - A History* by Julian Winston (44). (<https://www.homeopathycenter.org/treatment-epidemics-homeopathy-history> »)

Finally, it should be mentioned that experimenting with home remedies when suffering from an infection can delay the healing process and thereby aggravate the condition. This is therefore not advisable in the case of a serious infection which can cause lasting damage or, in the worst case, even lead to death. For your own benefit, if infected, immediately contact an experienced doctor. They will be able to identify a personalised remedy suitable for the stage of your infection. And last but not least, prevention is better than cure. For prevention, choose some suitable preventive measures from the given recommendations to strengthen your own immune system and follow the useful instructions of your health ministries.

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