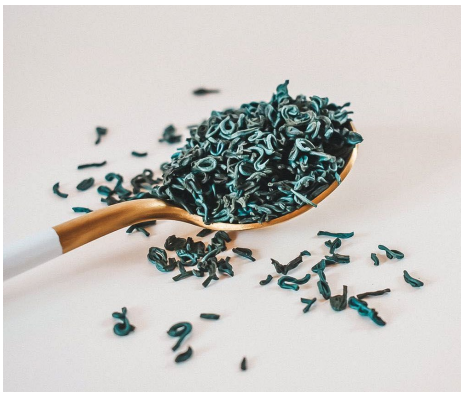
LB 07/02/2022 excellent, detailed knowledge of the subject, beautiful pictures to accompany the self-selection shown by the dogs. Lovely uses and how it should be offered. Wonderful.

Spirulina Powder (spirulina platensis)

Spirulina is an algae that grows naturally in mineral-rich alkaline lakes in subtropical and tropical areas of America, Mexico, Asia and Central Africa. It has been the traditional diet of some in Africa and Mexico for many centuries and has inhibited the planet for more than 3 billion years. It is quite possibly one of the oldest life forms on Earth. There are 3 main Spirulina algae—*Spirulina platensis, Spirulina maxima*, and *Spirulina fusiformis*- that have been most regularly investigated for their nutrition and functional properties.



After harvesting spirulina (most often from man-made spirulina lagoons), the biomass is dried into a powder that can then be used as it is, turned into capsules or incorporated into foods. Spirulina is very nutritious and for this reason is often called a superfood. It contains 60 percent vegetable protein, Vitamin A, E,C, a complete and digestible source of vitamin B-complex, a very high concentration of beta-carotene, phytonutrients, antioxidants, iron and trace minerals. Spirulina also contains the rare essential fatty acid GLA (gamma-linolenic acid). ✓

The area/water in which spirulina is grown is important to the quality of the spirulina. Spirulina is a single-cell micro-algae that is known to absorb heavy metals quite easily and other environmental contaminants. There are certain bodies of water that are more susceptible to contaminants. So it is important to look for labeling that says the product has been tested for heavy metals. It's best to select spirulina with organic certification (for example the brand naturya) which shows the spirulina will be grown in good water without polluting the environment around it with fertilisers or other agricultural toxins.

Health Benefits

Offering spirulina to cats and dogs can help to:

- Strengthen their immune system
- Improve gastrointestinal health
- Help aid detoxification
- Reduce the rate of cancer
- Help with allergies

When the immune system is stressed or suffering, it draws on the body's metabolic energy. Animals with immune system imbalance often feel fatigued and have low energy. Small amounts of spirulina can help balance and stabilise the immune system, freeing up more metabolic energy for vitality, healing and assimilation of nutrients. It enhances the body's cellular communication process and its ability to read and repair DNA. Laboratory studies show that spirulina polysaccharides can work to repair genetic material that has been damaged from toxins or from radiation. ✓

Some of the phytonutrients spirulina contains such as phycocyanin, polysaccharides and sulfolipids enhance the immune system. Studies confirm spirulina improves immune system function. Medical scientists discovered spirulina not only stimulates the immune system, it actually enhances the body's ability to generate new blood cells. Important parts of the immune system – bone marrow stem cells, T-cells, macrophages and natural killer cells, spleen and thymus glands – all show enhanced activity. Scientists observe it causes macrophages to increase in number, become activated and more effective at killing germs. ✓

Research confirms spirulina promotes digestion and bowel function. It suppresses bad bacteria such as e-coli and candida yeast whilst stimulating beneficial flora such as lactobacillus and bifidobacteria. Healthy flora increases absorption of nutrients and protects against infection. Researchers in Japan found spirulina significantly reduced kidney toxicity caused by the heavy metal mercury.

As spirulina stimulates natural killer cells and similar anti-immune components of the immune system it can help fight cancer cells. The natural carotenoid antioxidants promote cellular health and reduce the risk of cancer. Spirulina is also rich in the blue pigment phycocyanin, a biliprotein which has been shown to inhibit cancer-colony formation.

The vitamin E and essential fatty acids in spirulina also help support healthy skin and coat in cats and dogs. Spirulina also acts as a nutritive which is especially great for senior animals.

According to the latest study from Nestlé Purina Research, spirulina can help prevent or relieve food intolerances by supporting intestinal immune function. An unexpected part of the study was when they fed the dogs spirulina before a rabies vaccination, the dogs had a faster and stronger induction of rabies antibody production. Basically, Spirulina helped supercharge the protection against Rabies.

Jasper, my English Springer Spaniel who is almost 13 years old, has been self-selecting spirulina powder regularly. Not only is he now in his senior years, a bit arthritic and has a lot of lumps and bumps but he also had major surgery January 2021 where he had a splenectomy due to a large tumour on his spleen. Thankfully it was benign (non cancerous). Where Jasper no longer has a spleen his liver is having to work harder. Supporting his liver is important and spirulina helps with this. The cancer fighting properties are also good for prevention especially as Jasper is developing new lumps that I have to keep an eye on.

✓

Offering Spirulina to Cats and Dogs

It is best to offer spirulina in powder form to our animal friends. This way they are able to self select how much they need as opposed to taking it in tablet form or mixed in with their food. Choice and self selection is important. An animal may select spirulina one day but not the next. As spirulina is so nutrient dense only a small amount should be offered. The powder can be poured onto a china or glass plate (not plastic) and a little bit of water can be poured on the outside of the powder. Some animals prefer to lap up the powdery water whilst others prefer the dry powder. It's also good to be mindful of where you offer the powder as it can be quite messy and they can get it around their mouths (like Jasper above!) There's a reason spirulina is often used as a natural food colouring! ✓

A fresh bowl of water should also be available for the animal. Even if the animal has licked the plate of spirulina clean it's best you aren't tempted to add more. There can be too much of a good thing as spirulina is so nutrient rich and could cause stomach upset if offered too much especially if it is the first time the animal is selecting spirulina.

A teaspoon of spirulina can be added to dog treat recipes for extra health benefits. Recipes can be found in 'You Can Heal Your Pet' book by Elizabeth Whiter and Rohini Sathish.
✓

In some cases where animals are on medications such as immunosuppressants it is best the guardian checks with their vet since spirulina stimulates the immune system.

Bibliography

Whiter, E., Sathish, R., 2015, You Can Heal Your Pet.

Healing Animals Organisation - Online Sensory Enrichment Course

Shaw Becker, K, Habib, R, 2021, The Forever Dog.

BBC Good Food, 2022, Top 5 health benefits of spirulina. https://www.bbcgoodfood.com/howto/guide/health-benefits-spirulina

Evidence Based Complementary Alternative Medicine Journal, 2019. *Spirulina* in Clinical Practice: Evidence-Based Human Applications https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3136577/

The Innocent Pet, 2022, Health Benefits of Spirulina for Dogs. https://theinnocentpet.co.uk/blogs/the-innocent-pet-blog/health-benefits-of-spirulina-for-dogs#:~:text=It%20can%20strengthen%20your%20dog's%20immune%20system&text=Spirulina%20can%20help%20to%20balance,antibodies%20such%20as%20blood%20cells.&text=This%20means%20that%20spirulina%20can,in%20fighting%20disease%20and%20infection.

Dogs Naturally Magazine, 2021, Is It Safe to Give Dogs Spirulina, 2021.https://www.dogsnaturallymagazine.com/is-it-safe-to-give-dogs-spirulina/

Dogs Naturally Magazine, 2021, The Health Benefits of Spirulina for Dogs. https://www.dogsnaturallymagazine.com/benefits-of-spirulina/

Labo Demeter, 2021. Benefits of Spirulina : What Benefits for Animals. https://www.labo-demeter.com/en/actualit%C3%A9/12_benefits-of-spirulina-what-benefits-for-animals-labo-demeter.html

Frontiers in Nutrition, 2021. Supplementation of Diets With *Spirulina* Influences Immune and Gut Function in Dogs https://www.frontiersin.org/articles/10.3389/fnut.2021.667072/full

Wong,C.,2021, What is Spirulina?https://www.verywellhealth.com/the-benefits-of-spirulina-89079

Spira Kind, 2021. How to recognise goo quality spirulina. https://spirakind.com/blogs/news/how-to-recognize-good-quality-spirulina

Leech, J,2018. 10 Health Benefits of Spirulina, https://www.healthline.com/nutrition/10-proven-benefits-of-spirulina#TOC_TITLE_HDR_1

Learning Outcomes:

1. **Identify and harvest local culinary herbs specific to this course.**
2. **How to use fresh and dry herbs for simple remedies.**
3. **Equipment needed, drying and storage of herbs.**
4. How to use plant based hydrosols such as Rose and Neroli in sensory enrichment.
5. How to use the range of AnimalChoices® culinary macerated oils:- Rosehip, Marigold, Catnip, Seaweed, Nettle, Mint and cold pressed Linseed.
6. Create delicious culinary herbal pet treats specific to this course.
7. **Make simple animal topical preparations such as an insect repellent and cooling gel using plant material.**
8. **Have a clear understanding of what animal self -selection is and how animals can benefit from an enhanced, nutritional healthy balanced diet containing plant material.**
9. **Able to work and communicate with pet owners, vets and other animal care professionals.**
10. **How to keep professional standard records of all animal self-selection sessions undertaken.**
11. **Aware of the importance of personal and animal safety, as well as the relevant insurance, the law and vet liaison.**
12. **Be able to observe and understand why animals self- select culinary macerated oils/ herbs/ honey specific to this course at animal rescue centres and with private clients.**
13. **Aware of when not to conduct an animal self-selection session.**
14. **Be more aware of yourself as animal practitioner and consider how and when you will use your training and experience from this course.**