

SPOTLIGHT ON REISHI

Recently we have been fielding queries about the ratio and dose of our reishi (*Ganoderma lucidum*) 1:5 liquid herbal extract (30% ethanol; dose 70 to 210mL), which was one of the first products we developed in 2016 using a new product development process.

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Reishi is a powerful medicinal mushroom that has been widely used for more than 2000 years for promoting health and longevity in Asian countries. It is regarded as a panacea for a wide range of ailments including allergies, arthritis, bronchitis, hepatitis, immunological disorders and cancer. Reishi is prescribed to enhance immune resistance and prevent opportunistic infections. This spotlight will provide you with an explanation to demonstrate the value and quality of our product.

Almost everyone has been involved in some form of herbal extraction methodology. If you drink tea, plunger coffee or pour over coffee the only differences to making liquid herbal extracts are the solvent, the method and the temperature. As our name suggests, the Herbal Extract Company

performs liquid herbal extraction on a commercial basis.

The Herbal Extract Company Manufacturing Philosophy

We are a family run business that has been trading as the Herbal Extract Company (HEC) for 35 years however our family has been extracting herbs since the late 1800s. Our company philosophy is in keeping with the Galenic medicine tradition, meaning we want our broad spectrum extracts to mirror what is found in nature. We do not want to extract any particular phytochemical, instead we treat each phytochemical as important. This is why we do not standardise our extracts, rather we have a controlled, consistent process for manufacturing that ensures quality products are provided to our clients.

Our traditional extraction methods, such as solvent concentrations and the raw material testing required for each herb, were established from a number

of sources including empirical data and founder Lyndsay Shume's more than 50 years of clinical experience. More specifically they are based on standard reference texts such as the British Herbal Pharmacopoeia (1983), British Pharmaceutical Codex (1923), British Herbal Compendium (1992) and The Complete German Commission E Monographs (1998). Traditional references such as A Modern Herbal by Maud Grieve (1931) are also taken into consideration. We investigate where the herb originated and look into the growing region and the traditional application such as Traditional Chinese Medicine (TCM), Western Herbal Medicine or Ayurvedic medicine.

We take into account how the herb is traditionally extracted.

In TCM herbs are boiled in water whereas in Western traditional medicine the herbs are extracted with hydroethanolic solvents at room temperature.

The parameters for the temperature and processing of our herbal extracts have been developed over many years of herbal extract manufacturing so that we provide consistent high quality extracts. Specifically we use controlled low temperatures and limit the number of processes involved when extracting. The ethanol content is determined by laboratory experimentation using analysis techniques.

The herbal ratios that we trial depend on the nature of the herb. The most common ratios are 1:1, 1:2, 1:3, 1:4 and 1:5 but we do have some products, such as aloe, that is 1:30 due to the viscosity of the product and the low dose requirements.

Depending on the size and texture of the herb we have found that some herbs require milling which improves the solvent's ability to penetrate the herbs' cell walls and increases the efficiency of the extraction process.

Our traditional manufacturing process is by cold percolation. Many herbs contain sensitive phytochemicals and volatile oils which can degrade

when exposed to higher temperatures. The cold percolation process is ideal for preventing this. However some materials are best extracted at elevated temperatures as they are immune to degradation and this will produce a better extract.

We also take into account the history of the herb and its traditional methodology. Therefore when developing new products we trial controlled elevated temperatures however we do not heat or boil the products as TCM manufacturers do. In this instance we have found that an elevated controlled temperature at 45 degrees Celsius (only 10 degrees warmer than our own bodies) increases the efficiency of the extraction thereby maintaining our traditional low processing philosophy whilst integrating the TCM methodology into our process.

Our traditional manufacturing process can range from five days up to 30 days depending on the herb being extracted and its individualised manufacturing process. To ensure product quality, extract samples are taken daily for solid content testing.

Reishi

One of the first products we developed using this new product development process was our reishi 1:5 extract. Reishi is polypore mushroom, 5 to 30cm in diameter with a flat, red, kidney shaped cap with stalk. This herb is from China, where it is used in TCM, and is commonly referred to as the "immortal mushroom". It is classified as one of the great original adaptogenic medicines. The traditional Pinyin name (Chinese name converted into English) for reishi in TCM is Lingzhi. The plant part we use is the entire aerial part of the mushroom.

The pharmacological effect of reishi is based on its powerful immune modulating and immune potentiating capabilities which support and enhance immune function due to the presence of more than 400 active elements. These bioactive compounds include triterpenoids (e.g. ganoderic acids), polysaccharides (e.g. heteropolysaccharides, glycoproteins and beta-glucans), nucleotides, sterols, steroids, fatty acids, proteins (peptides) and trace elements which can be categorised into water soluble, organic soluble and volatile soluble compounds. The polysaccharides are water soluble molecules, whereas the triterpenoids are not.

Through laboratory experimentation the ethanol content and extract ratio was optimised to bring a balance of the water soluble and non-water soluble phytochemicals.

At the beginning of our product development we looked at the raw material and determined the most appropriate cut size for our traditional extraction methodology. Reishi is a difficult material to handle as it is very firm due to its high chitin content. It therefore requires milling prior to extraction.

We then looked into the traditional extraction methods. In TCM the herb is boiled in water in stainless steel vats, then drained from the marc and the extract is either provided by itself for treatment or the TCM practitioner compounds the liquid extract with other liquid extracts and prescribes a dosing plan.

Solvent Determination

The first step in the development of this particular herb was to determine the appropriate solvent system. We decided to trial 30% ethanol, 45% ethanol, 60% ethanol and 90% ethanol. It was found that 30% ethanol was the most suitable solvent system.

Cut Size

The cut size was determined experimentally in the lab and we found that the milled herb gave the best extraction efficiency using our traditional process.

Temperature Control

We compared the TCM method with our own traditional process and determined that 45 degrees Celsius is a perfect temperature to give the best extract.

Herbal Ratio

The herbal ratio lab scale experiments found that the 1:5 herbal ratio was very similar, even better than the lower ratios, therefore from a traditional manufacturing and a quality point of view the herbal ratio 1:5 was the most suitable for our product. According to phytochemical fingerprint comparisons we were able to use less raw material yet phytochemically we were able to make an equivalent product to a 1:2 in the finished product.

Conclusion

Without this developmental guide to establish the method of extraction for our reishi extract, the ideal herbal ratio, temperature, cut size and time would be unknown. Therefore this process ensures we deliver high quality extracts whilst maintaining our traditional broad spectrum extract philosophy. It also means we are integrating TCM manufacturing techniques thereby customising this specialised methodology to suit the herb's individual physical and chemical properties.

Dosing

With regards to the reishi dose (70 to 210mL), it was developed from The Natural Medicines Database, the most comprehensive and authoritative resource available on dietary supplements, natural medicines and complementary, alternative and integrative therapies.

It states that in general doses of 2 to 6g of raw reishi, or equivalent extract, should be taken daily with meals. Therefore if we take that dose as a 1:1, a 1:5 dose is 10 to 30mL daily, over seven days the dose is 70 to 210mL weekly.

The subject of appropriate dose is probably the most controversial aspect of contemporary Western herbal medicine. Our dosage recommendations will differ from that of other manufacturers you may choose to use because they are based on the opinion of the company making that product. Also keep in mind that different companies will use different manufacturing techniques.

Dosing is where the art of herbal medicine lies.

Remember they are just what they are called – recommendations. They are not maximum toxic doses but an effective dosage range. Recommendations are to be used as a guide only so don't be restricted by them. For example, in the case of reishi, the dose can be less than 70mL weekly. It is at the practitioner's discretion as to what amount to prescribe from their understanding of herbs.

There are a number of different philosophies of

dosage in herbal medicine. Some emphasise using higher dosages (pharmacological or heroic dosing), some lower (drop dosing), some incorporate many herbs into a formula, some only use a few. All these methods work in some circumstances. It depends on the practitioner-patient relationship, the skill of the practitioner and the situation.

The important thing to remember is that there is no single philosophy which is “better” or more “correct” than another. All philosophies have their place, however it is good to have some guidelines to work from. We recommend thinking of dosing strategies, rather than an absolute “correct” dose. Effective dosage strategies are essential to good patient outcomes.

The individual is the best determinant of dosage. Important factors include age, sex, body weight, organ function, absorption and metabolism, current medication, tolerance, route of administration, preparation of the medicine, timing (e.g. before or after food), sensitivity, synergy, if it's for long or short term use (as in acute conditions) and if symptoms are being treated or a tonic effect is desired.

The key is to remember a simple mantra: “Use what you need to use for the patient.”

Don't restrict how much of a herb is put in a bottle simply because it won't fit. The choice of dosage should be based on what the patient needs, not on how much will fit in a bottle. Titration is an option. This involves starting with a small amount and steadily increasing it until the desired results are achieved or unwanted effects are observed. Titration helps discover the lowest dose that is needed to get results. Titration is about getting the correct dose for the individual.

Whatever dosage system is used, remember the key differentiating factor between a herbalist or naturopath, and an orthodox medical practitioner, is the focus on individualised care. The individual is first and foremost. Herbal liquids give practitioners the ability to prescribe specifically for the individual. When combined with a good dosage system it will give patients the results they deserve and keep them coming back for care they cannot get elsewhere.



Reishi
(*Ganoderma lucidum*)

Resources

1. HEC monograph 2. Harper K. A traditional based guide for the development of a traditional liquid reishi extract. PowerPoint presentation. March 19 2017 Sofitel Brisbane, Queensland, Australia. Naturopaths & Herbalists Association of Australia 10th International Conference on Herbal Medicine.

Our powerful herbal healing is grounded in tradition, and we are devoted to sharing this with you.

Our practitioner-quality herbal extracts are handmade to harness the pure power of nature.

To learn more about liquid herbal medicine please contact us:



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