

**April Column**  
**Soap. Perfumery & Cosmetics**  
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## **The Changing Face of Naturals**

There are a number of changes that have slowly been taking place in the world of natural products and they have all been to the betterment of our products. In the first place, there has been a slow but definite move to using more, rather than less, extract in the product. Slowly, as if on a roll, the natural products have worked their way up the league table, which for them is every product INCI ingredient list.

The second big change is the move from undefined brown mucky liquids that could contain anything from duck droppings to last Monday's cabbage to beautifully polished and filtered extracts that in many cases captured the sweet smell of the original plant. These extracts are carefully matured and nurtured like fine-celled wines as opposed to banged out on demand like cheap plonk.

The major move is to define the active ingredients that are contained in these extracts. This means that we no longer have to throw in a cocktail of unknown ingredients that could kill cockroaches or burn holes in your carpet. What fun it was in those early days of naturals adding the mystery mix of the day to our products, in the hope that we had something magical in our chosen natural elixir. Like Merlin we sloshed and slopped in the extracts with gay abandon, incanting phrases like "made in the age old tradition", "it is more like herbal medicine", and "old-fashioned science". We hoped that God in his mercy had put a few precious beneficial molecules into our murky plant broth and left some of the potentially nasty ones out. It is difficult to know how the celestial bodies viewed the dustbin technology back on *terra firma*, as we shovelled spades of herb into old buckets, barrels and other discarded vessels and let them infuse into the water like the home brew beer kits so popular in my student days.

## **Back to reality**

Today the technology is going into the space age; plants are being extracted using kinder and 'softer' technology. The 'rot in a bucket approach' is being superseded by a number of fascinating alternative methods. Those extracts that used to be extracted by decoction, basically infusing the herb in hot water (compare to making tea) are now being extracted using a microwave technology. This reduces the stress placed on the active molecules to reduce the chance of oxidation, molecular break down and transformation.

Critical CO<sub>2</sub> and CO<sub>2</sub> extraction is increasingly being used to protect the heat sensitive molecules

that would normally be destroyed in steam distillation. Today, one can find high concentrations of matricin in the essential oil of German Chamomile (*Matricaria recutita*).

Another company has demonstrated that there are cryogenic methods of breaking down plant cells in order to more easily harvest the chemical bounty that is made more accessible as a result of this process.

Solvent extraction and recovery has also meant that plant macerates can deliver up their payload of beneficial actives with less risk of oxidation and discoloration, and the solvent recovered for subsequent use.

## **The major hurdle**

The most frustrating factor of those early days of naturals was to extract a confession out of the suppliers as to how much plant they used to produce 1 kg of extract. It was almost like asking how many times they had sex in a week, you were viewed like a bug-eyed monster from outer space, a person to be avoided. The question was always a reasonable one, not unlike asking how many spoons of ground coffee one has to add to the Cafetière in order to make a palatable drink. It was never unreasonable to ask how much of my cost was water and how much of my cost was in fact herb. One tonne of extract made from a handful of herbs is not the same as one tonne of extract made using one tonne of herbs and I always found it difficult to understand why suppliers had a problem with that question.

The most frequently asked question is regarding the level of the plant that should be used. Clearly the person using a 1:1 extract (one part of herb makes 1 part of extract) is going to use a different level to the person using the bargain price 1:100 tainted water.

## **The major breakthrough**

The discovery of chemistry has made life a great deal easier. We used chemistry a great deal in our treatment of synthetic products, but when it came to naturals it was far better to go back to the ways of the witch doctor, soothsayer and mystic crone. Why spoil a wonderful concept like naturals with the harsh reality of HPLC or HPTLC, or introduce an element of scientific validation by looking for an active molecule at a specific percentage. Naturals worked by magic, what was good for Paracelsus and Pliny was perfectly acceptable for the new millennium, until some people began to see a truth. These materials really did have benefit. It was amazing, the natural products made in a controlled, careful and scientific method had benefit, the last five thousand years of herbal medicine really did have proven efficacy. Why was that such a huge surprise?

The idea that we could produce a standardised extract (this means batch to batch consistency), that we could define the active molecule (this means it has some pharmaceutical validity) and substantiate the use of the product in clinical or instrumental studies (this means that we show it works) should not have taken as long as it did.

## **Conclusion**

Thirty years ago we had a few Extraponos from Dragoco, and very few other choices. It is pleasing and heart-warming to note that it has only taken thirty years to bring the ‘naturals business’ to the point where a chemist does not have to hide his face in shame for the lack of science.

This is the last in the series of the “Naturals” column, after 35 editions I am taking a breather, but I would like to thank Clare Henderson and the team at SPC for the wonderful opportunity to talk about my favourite topic.