



EXCURSIONS AND OTHER NEWS

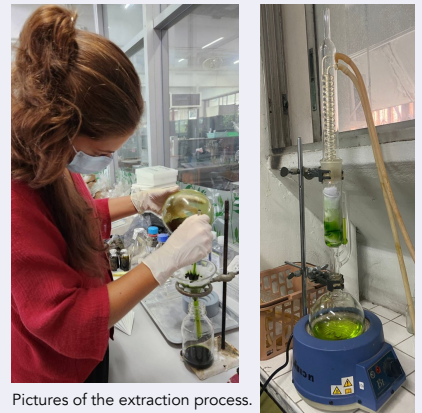
Small insights in student's or professor's points of view, field trips, and other stuff we do.

Thai (holy) Basil – Cosmetic Usage – Lab Rotation

by Nina Bürger

I had the opportunity to do my lab rotation in Bangkok (Thailand) in the department of pharmacognosy and pharmaceutical botany at the Chulalongkorn university. I worked with Thai basil, a very important spice for the Thai kitchen. Plants of the same family contain rosmarinic acid (RA) and caffeic acid (CA), two plant compounds that are known for their anti-inflammatory and antioxidative activity. These compounds are very interesting when it comes to skin care, as cremes containing RA and CA reduce the oxidative stress and therefore skin aging caused by aerosols. They also treat inflammatory conditions like arthritis, asthma, and atopic dermatitis. The aim of my project was to qualify and quantify the amount of RA and CA contained in Thai basil, as it is easily accessible and cheaper than other previously tested plants. Therefore, Thai Basil could be a promising source of these compounds.

To do so I had to prepare the plant using different techniques to finally receive the extract to work with. I then performed different types of chromatography to identify the compounds. This lab rotation helped me to get an insight into the cosmetic industry and broadened my horizons in what areas biology can be applied.



Pictures of the extraction process.

FACT CHECK

In this section students evaluate the scientific evidence behind a certain urban myth.

Cold Showers and Health Benefits

by Maria Köckert, Elias Strecker, Paula Baierlein

For most people, cold showers seem to just not be worth the discomfort. Is there reason to believe any of the numerous articles glorifying the positive effects cold showers have on the body, and willingly expose oneself to anything other than soothing hot water? This article offers an overview of the scientifically tested health benefits of cold showers.

Claim one: regular cold showers prevent sickness

A Dutch study found that cold showers really can decrease the number of sick days taken off work and give you a more energetic start to the day. For one month, 3000 people were asked to have a cold shower daily. Researchers observed whether this affected the number of days on which the participants showed signs of illness, the number of days which they took off work because of sickness and if the duration of the cold shower influenced both. The number of reported days with symptoms of illness, were not significantly different between the groups. However, the results showed that no matter how long the cold shower was, participants that took cold showers claimed 29% fewer sick days. This implicates, that not the duration of sickness might be reduced by regular cold showers, but rather the severity of symptoms. The combination of cold showers with sports reduced the number of claimed sick days even by 54%. Furthermore, participants reported a higher energy level and an overall higher quality of life. It remains unclear how exactly cold showers could help to reduce illness.

Claim two: cold showers have an energizing effect

A Czech study proposes that the bodily reactions triggered by cold showers could explain the energizing effect. During a cold shower, signals are transmitted from the cold receptors of the skin to the nervous system, which leads to an increased release of noradrenaline, a stress hormone. Heart rate and blood pressure also increase. These are automatic physiological responses from the body known as "fight-or-flight-response". The body is energized by cold showers because it is reacting to a stressful situation and is tricked into being alert and awake. Repeated exposure to cold water (three times per week) showed that "cold-acclimated" participants had a lowered cold sensation. However, to confirm these findings, more and larger studies need to be done.

Claim three: cold showers support muscle regeneration and can act as a "natural" antidepressant

Cold water is also said to reduce delayed onset of muscle soreness or aching after sport. In a complex analysis, results of various studies on the impact of multiple techniques for muscle regeneration and recovery after exercise were analyzed. It was found that cold-water immersion at 15 °C after exercise can counteract inflammation and sore muscles. Even if it might not be as effective as a massage or stretching, a cold shower is still a simple and quick way to support the body's regeneration after training. That cold showers can relieve depression still remains a myth, but researchers propose that an antidepressive effect may come from the overwhelming number of electrical impulses that get sent by the many cold receptors in the skin. However, there needs to be much more testing to confirm this hypothesis.

There is a fair amount of evidence that having a cold shower can be good for one's health – even if the reasons why are still partly unclear. A cold shower alone will not create a healthy lifestyle and keep you from ever becoming sick again but could be very effective in waking up and energizing the body. As with many "must-try" lifestyle choices this cold shower routine is not the ultimate tool to living a healthy life. However, implementing it into a balanced way of living might enrich some individuals with the positive aspects that were analyzed. So, if you're curious, try it yourself!

Literature: [1](#), [2](#), [3](#), [4](#), [5](#), [6](#)

LIFE AS A SCIENTIST

Interviews with professional scientist, insights in their research and lives.

Life as a scientist – Interview with Prof. Reinhardt

Hello Prof. Reinhardt, please introduce yourself and tell us about your research topic.

I am Klaus Reinhardt, Professor of Applied Zoology. Together with Prof. Oliver Zierau, I feel as one of the fathers of Biology in Society. My group's research looks into reasons of male infertility, I am simply fascinated by sperm biology. Specifically, we look why and how and which environments affect which aspects of sperm function.

What is one important thing you have discovered during your career as a scientist?

Empirically, I like our discovery that a unique immune organ evolved in female bedbugs because of sexually transmitted microbes; insects don't usually have proper immune organs. However, I prefer to think about concepts and here I should like to hope that my 'invention' of sperm ecology might leave a tiny, if only temporary, mark in evolutionary and sperm biology.

What do you like most & least about your job?

Most I like the freedom, the amazing chance that I can think about things that may make people think differently, the incredible salary and that I discovered in our M.Sc. course "Biology in Society" just how good teaching feels if you can explore new things. Like most academics, I really dislike the ever-increasing administration and especially that it is not driven by a need but by bureaucrats that create league tables, reports, data bases, information sources etc. whose only purpose seems to compare people, labs, universities, institutes or countries, and to show off how excellent everyone is. This is a deplorable waste of taxpayer's money on our salaries. And I don't like it very much that sometimes students seem to find it more comfortable to being told "xyz is a fact", rather than sharing my thoughts on how to get to this statement.

Important question to an entomologist: What is your favourite insect and why?

I like all eight million or so species! Ok seriously... at work I like bedbugs because whenever we do research on them, we discover something unexpected. And I know so much about them. I like dragonflies because they are beautiful and I know their biology quite well - whenever I see a certain species, I immediately know that this is a good habitat I am in. I have their biology, rarity etc. in mind - this big mosaic of knowledge feels great. And lately I discovered scale insects for myself - probably because most of the time that you find a species or find out things about them it is a new discovery. Even in our Bachelor course 'Insects' this happens a lot.

If you could not be a professor, what job would you like to do, and which research field would you choose apart from Biology?

I think I would still be a writer of some sort. I could possibly, and did, go astray into history but I cannot imagine my life without natural history. No, that's impossible! Sometimes I imagine it could be quite nice to do a job for 8 hours, go home, and leave the thoughts and work at work.

Which book would you recommend everyone to read?

Biology - I think I'll go for Sapolsky's 'Behave'. Just incredible.

Fiction - I like most stuff by T.C. Boyle and Christoph Ransmayr. And there is a really interesting Jewish author, Clive Sinclair. Him I recommend! For my own book I translated a short story by Sinclair - I don't think I have ever seen a written piece where almost every sentence is surprising and plays on words. Read him!

What new thing would you like to learn?

I would like to take more time to sit outside and draw. For this I would have to learn both - taking time and drawing. And as a bonus I can tell you the secret that rather than learning something new I would like to lose the fear of things that I had learned years ago, not used and forgotten them. Now I feel too stupid to re-learn them, most notably statistical programming and microscopy.