

# Natural products could be as effective as synthetic drugs, although the odds are low

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In a first-ever comprehensive study of 124 natural product combinations, a team of researchers from the National University of Singapore (NUS) and Tsinghua University, led by Professor Chen Yu Zong from the Department of Pharmacy at the NUS Faculty of Science, found that certain combinations of natural products can be as effective as man-made drugs in acting against specific disease processes. However, the chances of finding the effective combination of natural products could be as low as below 3 per cent.

## Natural product combinations as potent as man-made drugs

Published in [PLOS ONE](#) in November 2012, the research showed that active ingredients in combinations of natural products can achieve the same level of potency as synthetic anticancer and [antibacterial drugs](#) but they have to be taken in larger quantities or for a longer period of time. These combinations include [traditional Chinese medicine](#) such as the Realgar-Indigo naturalis formula designed for the treatment of leukaemia, *Wedelia chinensis* for anti-inflammatory purposes and [black tea](#) used in Japan for the treatment of gastroenteritis.

Through an analysis of more than 1,601 previous studies conducted on natural products and 190 man-made drugs, the researchers found that natural products are generally 10 to 100 times weaker than man-made drugs. They concluded that combinations of natural products can achieve

the same strength as man-made drugs, but with current traditional practices, the odds are low.

Prof Chen said, "There have been claims that natural products simply have a [placebo effect](#). In our study, we looked at more than 100 types of natural product combinations that are perceived to be the best and found that it is possible for natural products to achieve the same effectiveness as man-made drugs. However, the probability of finding such combinations based on traditional methods is low (below 3 per cent) as the natural products have to be of sufficient potency and taken in the right combination."

## **Next steps for research on natural products**

The findings from this research provide a foundation for further studies on the clinical effectiveness of herbal medicine and how a combination of natural products and synthetic drugs can be taken together to fight diseases.

The team will continue to conduct more research in this area, in particular, to determine how to achieve the same level of effectiveness for natural products as synthetic drugs. Their research will focus on popular herbal products and frequently prescribed traditional medicine.

**More information:** Qin C., et al. What Does It Take to Synergistically Combine Sub-Potent Natural Products into Drug-Level Potent Combinations? *PLoS ONE* 7(11): e49969.

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