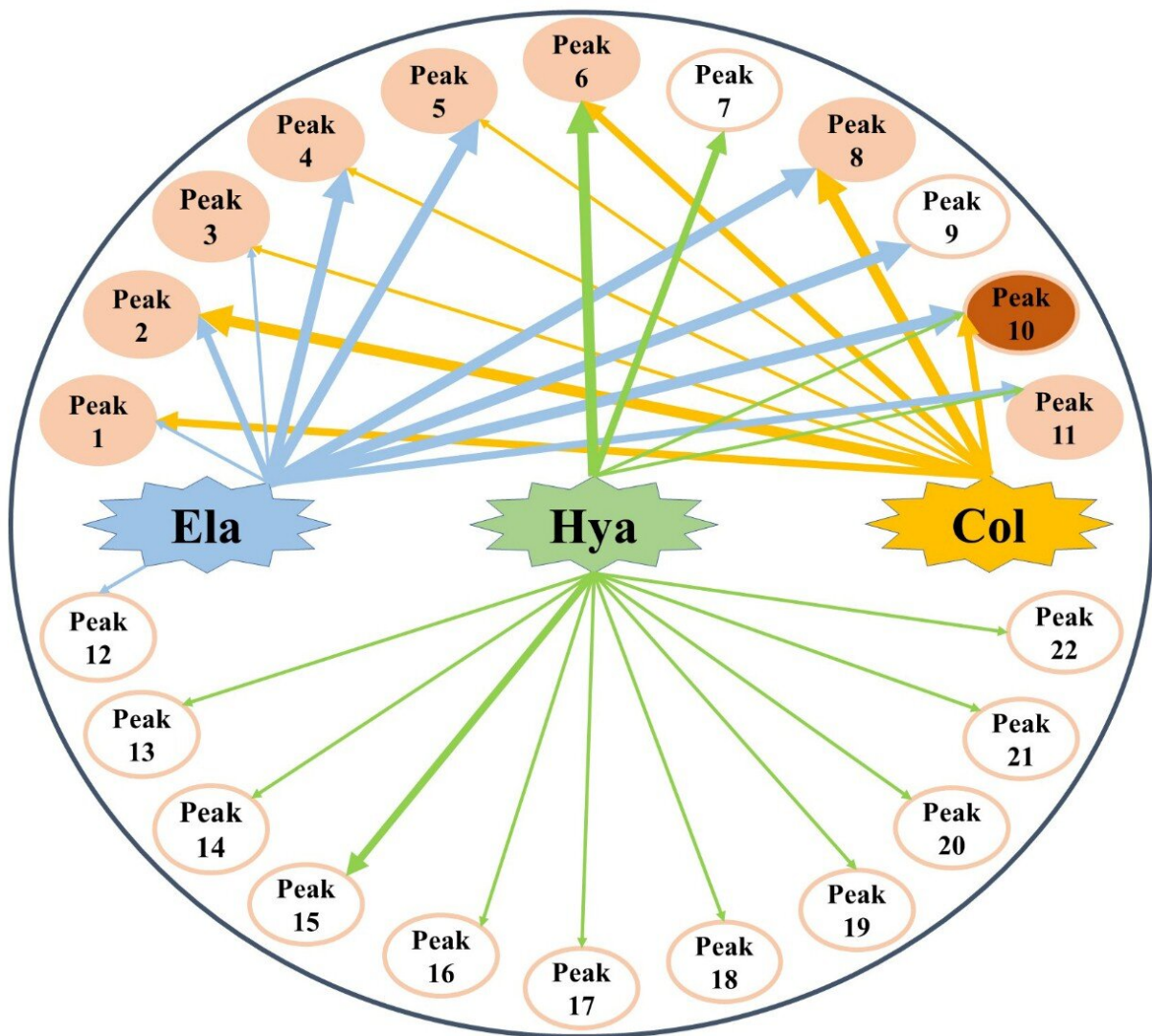


Potential anti-aging components of *Moringa oleifera* leaf

August 15 2022, by Zhang Nannan



Network diagram of multicomponent and multi-target interactions of *Moringa oleifera* leaves. Credit: WBG

Moringa oleifera Lam., also known as Miracle Tree, primarily derived from India, is now widely distributed in tropical and subtropical regions. Previous studies have showed that *M. oleifera* has anti-aging effects, but there is a lack of in-depth research on the specific active ingredients and mechanisms of this anti-aging activity. Researchers are working to screen out the most effective active components of *M. oleifera* leaves.

Supervised by Prof. Guo Mingquan from the Wuhan Botanical Garden of the Chinese Academy of Sciences, Xu Yongbing conducted in vitro elastase and collagenase enzyme inhibitory assays to evaluate the activities of *M. oleifera* leaf extracts.

He found that *M. oleifera* leaf extracts possessed promising anti-elastase and anti-collagenase activities. Then, 10, 8, and 14 potential bioactive phytochemicals were screened out from *M. oleifera* leaf extracts against elastase, collagenase and hyaluronidase using the multi-target bio-affinity ultrafiltration coupled to high-performance liquid chromatography-mass spectrometry (AUF-HPLC-MS), respectively.

In addition, further verification of representative active components was completed with molecular docking analysis. Results showed that these potentially [active compounds](#) could form hydrogen bonds with amino acid residues Asn112, Trp115, Glu141, Glu164, and Asp221 of elastase, Arg214, Val215, Glu219, and Pro238 of collagenase, Arg47, Asp56, Gly58, Asp111, Glu113, and Ser304 of hyaluronidase, respectively. These [hydrogen bonds](#) enhanced the binding ability of active small molecules to biological target molecules.

This is the first study to comprehensively demonstrate *M. oleifera* leaves possess the significant elastase and collagenase inhibitory activities in vitro and reveal its potential bioactive components as well as the

mechanism of anti-aging activity.

Meanwhile, it provides a theoretical basis for its further development into functional anti-aging products in the cosmetics and cosmeceutical industries combating aging and skin wrinkling.

The relevant results have been published in *Frontiers in Nutrition*, titled "Potential Anti-aging Components from Moringa oleifera Leaves Explored by Affinity Ultrafiltration with Multiple Drug Targets."

More information: Yongbing Xu et al, Potential Anti-aging Components From Moringa oleifera Leaves Explored by Affinity Ultrafiltration With Multiple Drug Targets, *Frontiers in Nutrition* (2022). [DOI: 10.3389/fnut.2022.854882](https://doi.org/10.3389/fnut.2022.854882)

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