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Rapeseed, which so far is mainly used for oil production and animal feed, additionally exhibits a high potential for its use in human nutrition due to its high protein content and well balanced amino acid composition. Unfortunately, an unpleasant bitter off-taste in the rape seed meal and rape seed protein isolates prevents the application in the food industry. By isolating the bitter tastants of rape seed protein isolates by means of activity guided fractionation and, furthermore, applying taste dilution analysis (TDA), LC-MS/MS, LC-TOF-MS and 1D/2D-NMR spectroscopy, LC-MS/MS quantitation, dose-over-threshold considerations, and sensory spiking experiments, kaempferol 3-O-(2'''-O-sinapoyl- $\beta$ -sophoroside), was identified to be a main contributor to the bitter off-taste. The kaempferol-glycoside evokes a bitter taste perception above the low threshold of 3.4  $\mu$ mol/L. This discovery opens new possibilities for a biorefinery approach to remove off-tastans.

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### References

Hald et al. (2019) Kaempferol 3-O-(2'''-O-Sinapoyl- $\beta$ -sophoroside) causes the undesired bitter taste of canola/rapeseed protein isolates. *Journal of Agricultural and Food Chemistry* 67: 372-378.