**The variability of beta-amyrin synthase gene *PsBAS* in field pea varieties**

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Saponins are bitter compounds found in peas and many other edible plants. Saponins are plant secondary metabolites that consist of a hydrophilic sugar chain and a lipophilic aglycone. There is a wide diversity of saponins (Timilsena et al., 2023). Peas contain two saponins, saponin B and DDMP, which both contribute to pea bitterness, but DDMP saponin is more bitter and more abundant. The concentration of saponins can vary more than two-fold between varieties. The biosynthesis of both pea saponins, DDMP and saponin B, depends on a single gene: *PsBAS* (Beta-amyrin synthase) (Vernaud et al., 2021). PsBAS catalyzes the production of DDMP, which breaks down into slightly less bitter saponin B.

*PsBAS* consists of 15 exons, and has a long intron of over 3000 bp between exons 14 and 15. We selected several varieties known to be either bitter or not bitter and sequenced the exons of the PsBas gene. Our analysis shows considerable variability in the DNA sequence, and some mutations also result in a change in the the amino acid sequence. The bitterness of the selected varieties can also be affected by compounds other than saponins and the effect of the mutations on the concentration of saponins remains to be studied.

***References:***

[1] Timilsena YP et al., 2023, Int J Mol Sci, 24(17):13538

[2] Vernaud V et al., 2021, Plant Cell Physiol,62(5):784-797