Abstract

Remobilisation and Fate of Sulphur in Indian Mustard (*Brassica juncea*. L) [†]

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Abstract: Understanding the basis of sulphur (S) use efficiency in higher S requiring crops such as brassicas can help develop more cost-effective cultivars. Oleriferous brassicas sequester reduced S in the mature seeds mainly as secondary metabolite-glucosinolate (GSL) and seed storage proteins (SSP). Glucosinolates have a wide range of positive aspects in food production, human nutrition and plant defence, and SSPs are a potential source of high quality vegetable proteins for human and livestock consumption. We carried out a developmental S audit to establish the net fluxes of S in two lines of *B. juncea* mustard where the level of seed GSL differed. We quantified S pools (sulphate, GSL and total S) in different organs at multiple growth stages until maturity. We have established that leaf S components accumulated as primary S sinks at early developmental stages in condiment type *B. juncea* become remobilised as a secondary S source to meet the demand of GSL as the dominant seed S sink at maturity. Our evidence for S remobilisation from leaves as primary S sink suggests that up or down regulation of signalling molecules which mediate between secondary S sinks and sources may help modulate economically valuable S compounds in brassica seed.

Keywords: sulphate; glucosinolate; seed storage proteins; source; sink; brassica; canola; remobilization

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