

LEGHAEMOGLOBIN ISOPROTEINS IN DARK STRESSED AND RE-ILLUMINATED CHICKPEA ROOT NODULES THROUGH ION EXCHANGE CHROMATOGRAPHY

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The aim of study was to investigate qualitative behavior of leghaemoglobin (Lb) sub-fractional components during dark induced nodular senescence. A conventional protein purification method using ion exchange chromatography (HPLC) readily resolved ferric Lb into eight sub-fractional components namely *a1*, *a2*; *b*; *c1*, *c2* and *d1*, *d2* *d3* in the unstressed chickpea nodules. Lb complexes behave differently during growth phases of the nodules. Lb 'a' complex is directly related to the growth and developmental of nodules wherein proportion of Lb *a2* content increases with age of nodule accompanying concurrent decrease Lb *a1*. Early appearance of senescence related isoprotein Lb *a2* at vegetative phase of chickpea cultivar correlates its stress-susceptible nature. Further, the turnover rates of Lb *a1* to *a2* and Lb *b* were insensitive to reduced supply of photosynthates during dark stress and even re-illumination. The relative proportion of *c2* to *c1* inversion increases during darkness. Further, Lb'd' complex is affected the most during prolonged darkness. Thus, ratio between individual sub-fractional components of Lbs' can be correlated with the development phase, longevity and supply of carbohydrates to nodules.

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