

Qualifications: M.Sc; Ph.D (Biochemistry)
Field of specialization: Enzymology; Plant Biochemistry

LIST OF RESEARCH PUBLICATIONS OF DR. H.R.SINGAL

(a) Full papers

Ram, Hari and Singh, R. 1982. Chlorophyll content, photosynthetic rates and related enzyme activities in ear parts of two wheat cultivars differing in grain yield. **Plant Physiology and Biochemistry** **9**: 94-102.

Kumar, R., **Ram, Hari** and Singh, R. 1982. Some of the metabolic activities of immature pericarp in developing wheat grains. **Nat. Acad. Sci. Lett.** **5**: 153-155.

Ram, Hari, Kumar, R. and Singh, R. 1985. ADP-glucose pyrophosphorylase activity in relation to starch accumulation in developing wheat grains. **Nat. Acad. Sci. Lett.** **8**: 171-174.

Singal, H. R., Sheoran, I, S., and Singh, R. 1985. Effect of water stress on photosynthesis and *in vitro* activities of PCR cycle enzymes in pigeonpea. **Photosynthesis Research (Netherlands)**. **7**: 69-76.

Singal, H. R., Sheoran, I. S. and Singh, R. 1986. *In vitro* enzyme activities and products of ¹⁴CO₂ fixation in flagleaf and ear parts of wheat. **Photosynthesis Research (Netherlands)** **8**: 113-122.

Singal, H. R. and Singh, R. 1986. Purification and properties of PEP carboxylase from immature pods of chickpea. **Plant Physiol. (Lancaster)** **80**: 369-373.

Singal, H. R., Sheoran, I. S. and Singh, R. 1986. Products of photosynthetic ¹⁴CO₂ fixation and related enzyme activities in fruiting structures of chickpea. **Physiol. Plant. (Copenhagan)** **66**: 457-462.

Sheoran, I. S., **Singal, H. R.** and Singh, R. 1987. Photosynthetic characteristics of chickpea podwall during seed development. **Indian J. Expl. Biol.** **25**: 843-847.

- Singal, H. R.**, Sheoran, I. S. and Singh, R. 1987. Photosynthetic carbon fixation characteristics of fruiting structures of *Brassica campestris* L. **Plant Physiol. (Lancaster)** **83**: 1043-1047.
- Chand, Hari, Khirbat, S. K., **Singal, H. R.**, Jalali, B. L. and Singh, R. 1988. Association of morphological and biochemical characters with chickpea *Ascochyta* blight. **Indian Phytopath.** **41**: 75-79.
- Singal, H. R.** and Singh, R. 1988. Diurnal changes in rate of photosynthesis, its metabolites and related enzyme activities in wheat glumes. **Nat. Acad. Sci. Lett.** **11**: 163-165.
- Sheoran, I. S., **Singal, H. R.** and Singh, R. 1990. Effect of cadmium and nickel on photosynthesis and enzymes of photosynthetic carbon reduction cycle in pigeonpea (*Cajanus cajan* L.) **Photosynthesis Research (Netherlands)**. **23**: 345-351.
- Singal, H. R.**, Laura, J. S. and Singh, R. 1992. Ontogenic changes in photosynthetic carbon reduction cycle metabolites and enzymes of sucrose metabolism in *Brassica campestris* pods. *Photosynthetica* **26**: 463-468.
- Singal, H. R.**, Sheoran, I. S. and Singh, R. 1992. Photosynthetic contribution of pods towards seed yield in Brassica. **Proc. Indian Nat. Sci. Acad. B** **58**: 365-370.
- Singal, H. R.**, Laura, J. S. and Singh, R. 1992. Photosynthetic carbon reduction cycle metabolites and enzymes of sucrose and starch biosynthesis in developing Brassica pods. **Indian J. Biochem. Biophys.** **30**: 273-276.
- Dua, A., Talwar, G., **Singal, H. R.** and Singh, R. 1994. CO₂ exchange, primary photochemical reactions and certain enzymes of PCR cycle of Brassica pods under water deficit. **Photosynthetica** **30**: 261-268.
- Singal, H. R.**, Talwar, G., Dua, A., Singh, R. 1995. Pod photosynthesis and seed dark CO₂ fixation support oil synthesis in developing *Brassica* seeds. **J. Biosci.** **20**: 49-58.
- Sindhu, A., Singh, R., Nehra, K. S. and **Singal, H. R.** 1995. Elicitor induced metabolic changes in seedlings of chickpea (*Cicer arietinum* L.) in relation to *Ascochyta* Blight. **Annals Biol.** **11**: 183-187.
- Sawhney, V., **Singal, H. R.**, Singh, R., Sawhney, S. K. and Singh, D. P. 1996. Pattern of plant relations and carbon dioxide exchange rates in

contrasting genotypes of *Brassica juncea* L. under water deficit conditions. **Indian J. Plant Physiol.** **1**: 203-206.

Kathuria, M. K., Singh, Harbir, **Singal, H. R.**, Singh, D. P. and Agarwal, S. K. 1996. Changes in plant water status and net leaf photosynthesis of sunflower (*Helianthus annuus* L.) with ontogeny. **Crop Res.** **11**: 286-290.

Singh, R. P., Chand, Hari, Bhan, Uday and **Singal, H. R.** 1997. Role of malic acid disease resistance/susceptibility to chickpea *Ascochyta* Blight. **Annals Agro Bio. Res.** **2**: 21-23.

Sindhu, A., Singh, R., Saini, N., Sangwan, V. and **Singal, H.R.** 1998. Studies on defence mechanisms of chickpea (*Cicer arietinum* L.) callus cultures against *Ascochyta rabiei*. **Legume Res.** **21**: 105-108.

Malhotra, R., Kumar, Sudhir, Jyoti,, **Singal, H. R.** and Dhindsa, K. S. 2000. Synthesis, characterisation and peroxidase activity of binuclear complexes of 2, 6-bis (2-hydroxybenzylidene hydrazone)-4-methyl phenol. **Indian J. Chem.** **39A**: 421-424.

Singal, H. R., Sangwan, B. and Sindhu, A., 2000. *Vicia faba* – a good source of tyrosinase. **Life Science Reporter** **2**: 36-38.

Singh, R., Sindhu, A., **Singal, H. R.** and Singh, R. 2003. Biochemical basis of resistance in chickpea (*Cicer arietinum* L.) against *Fusarium* wilt. **Acta Phytopathologica et Entomologica, Hungaria.** **38**: 13-19.

Singh, M., Chaudhary, K., **Singal, H. R.**, Magill, C. W. and Boora, K. S. 2006. Identification and characterization of RAPD and SCAR markers linked to anthracnose resistance gene in sorghum [*Sorghum bicolor* (L.) Moench] **Euphytica** **149**:179-187.

Singh, R., **Singal, H. R.** and Goyal, S.C. 2006. Biochemical changes in Embryogenic callus cultures of *Chlorophytum borivillianum* Sant. et Fernand. **J. Plant Biol.** **33**: 1-7.

Singh, R., **Singal, H.R.** and Goyal, S.C. 2009. Rhizogenesis related biochemical changes in callus cultures of *Chlorophytum borivillianum* Sant. et Fernand. **Progressive Agriculture** **10**:(in press)

(b) Short communications

Kapoor, A., **Singal, H. R.** and Jain, S. 2003. Induction, purification and characterization of β -1, 3-glucanase from *Brassica juncea* L. infected

with *Albugo candida*. **J. Plant Biochemistry and Biotechnology** **12**: 157-158.

(c) Papers published in conference/symposium proceedings

Lo, T. C. Y., Kudo, P., Kovalala, T., Xia, L. and **Singal, H. R.** 1990. The presence of two transcripts for the hexose transporters in undifferentiated rat myoblasts. **J. Cellular Biochem.** **14E**: 26.

Angrish, R. and **Singal, H. R.** 1990. Assimilate shifts between early and late tillers of rice variety 'Rasi'. *Proc. International Symp. on Rice Research. New Frontiers.* pp. 377-379.

Dua, A., Talwar, G., **Singal, H. R.** and Singh, R. 1993. CO₂ exchange, primary photochemical activities and PCR cycle enzymes of developing *Brassica* pods under reduced light intensity. *Proc. DAE Symp. on Photosynthesis and Plant Molecular Biology*, New Delhi. pp.97-103.

(d) Book chapters

Singal, H. R. and Sawhney, S. K. 2000. Cell fractionation. In "Introductory Practical Biochemistry" (S. K. Sawhney and Randhir Singh eds.). pp.158-194. Narosa Publishing House, New Delhi.

Goyal, V., **Singal, H. R.** and Sheoran, I. S. 2003. Recombinant DNA technology in improving photosynthetic efficiency. In "Frontiers in DNA Applications" (R. K. Behl, Satyavir and A. K. Chhabra eds.) pp. 64-69.

Singal, H. R. 2007. CO₂ fixing Enzymes and Important Metabolites. In "Research Methods in Plant Sciences. Allelopathy: Plant Physiology" (B. Politycka and C. L. Goswami eds.) Vol.5. pp. 184-201. Scientific Publishers, Jodhpur, India.

(e) Write-ups in practical manuals

Singal, H. R. and Singh, R. 1985. Assay of the key enzymes of C₃, C₄ and CAM pathways. In "*Experimental Techniques in Photosynthesis and Biological Nitrogen Fixation*". (Randhir Singh and H. S. Nainawatee, eds.). pp. 17-26.

Singal, H.R. and Singh, R. 1985. Measurement of metabolites of CO₂ fixation pathway. *In: "Experimental Techniques in Photosynthesis and Biological Nitrogen Fixation"*. (Randhir Singh and H. S. Nainawatee, eds.). pp. 27-33.

Singal, H.R. and Singh, R. 1985. Tracer techniques for identification of photosynthetic pathways. *In: "Experimental Techniques in Photosynthesis and Biological Nitrogen Fixation"*. (Randhir Singh and H. S. Nainawatee, eds.). pp. 45-51.

Singal, H. R. 2006. Use of Radioisotopes in Biochemistry. In "Laboratory Manual on Experiments in Biochemistry" (Sarala Malhotra *et al.*, eds). Department of Biochemistry, CCS HAU, Hisar. pp. 109-129.