









## Acknowledgment

The authors are thankful to the Coordinator, Institution of Excellence, University of Mysore, Mysore for providing financial assistance and the Chairman, Department of Studies in Sericulture Science, University of Mysore, Mysore, for providing facilities to carry out the current investigation.

## References

- [1] A.O.A.C. 1970. *Methods of Analysis*. Association of Official Agricultural Chemists. 9<sup>th</sup> Ed., Washington, D.C., p. 789.
- [2] Arnon, D.I. 1949. Copper enzymes in isolated chloroplasts polyphenoloxidase in *Beta vulgaris*. *Pl. Physiol.*, **24**: 1-15.
- [3] Beck, S.D. 1972. Nutrition, adaption and the environment. In: *Insect and Mite Nutrition - Significance and Implications in Ecology and Pest Management* (Eds. J.G. Rodriguez). Elsevier-North Holland Press, Amsterdam, pp.1-6.
- [4] Bongale, U.D. and Chaluvachari 1995. Evaluation of eight mulberry germplasm varieties by leaf biochemical and bio-assay moulting studies. *Sericologia*, **35**: 83-94.
- [5] Chandrappa, D., Govindan, R. and Sannappa, B. 2005. Nutrient status of leaves of some castor genotypes in Eastern dry zone of Karnataka. *Int. J. Agric. Sci.*, **2**: 225-227.
- [6] Chandrashekhar, S., Sannappa, B., Manjunath, K.G. and Govindan, R. 2013. Nutritive value of leaves in different genotypes of castor (*Ricinus communis* L.). *Indian J. Plant Sci.*, **2**(2): 22-27.
- [7] Cohen, A.C. 2004. Book review : *Insect Diets - Science and Technology*. CRC Press, Florida, p. 324.
- [8] Dadd, R.H. 1977. Qualitative requirements and utilization of nutrients in insects. In: *Handbook Series in Nutrition and Food, Nutritional Requirements* (Ed. M. Rechcigl). CRC Press, Florida, pp. 305-346.
- [9] Daniel, R.J.R. 1997. Taxonomic uncertainties and conservation assessment of the Western Ghats. *Curr. Sci.*, **43**: 1-8.
- [10] Dubois, M., Giles, K.A., Hamilton, T.K., Robeos, R.A. and Smith, R. 1956. Calorimetric determination of sugars and related substances. *Anal. Chem.*, **28**: 350-356.
- [11] Eaton, F.M. 1942. Toxicity of accumulation of chloride and sulphate salts in plants. *J. Agri. Res.*, **64**: 359-399.
- [12] EL-Shaarawy, M.F., Gomma, A.A. and EL-Garthy, A.T. 1975. Chemical determination and utilization of dietary constituents of two castor bean varieties by larvae of the eri silkworm, *Attacus ricini* Boisduval. *Z. Angew. Ent.*, **78**: 171-176.
- [13] Francisco, J.H. and Rosario, Z. 1996. In: *Food Chemistry* (Eds. L.P. Kirk and O.R. Fennema). CRC Press, Florida, pp. 716-719.
- [14] Hiscox, J.D. and Israelstam, G.F. 1979. A method for the estimation of chlorophyll from leaf tissue without maceration. *Canadian J. Bot.*, **57**: 1332-1334.
- [15] Horie, Y. 1978. Quantitative requirements of nutrients for growth of the silkworm, *Bombyx mori* L. *JARQ*, **12**(4): 211-217.
- [16] Jackson, M.L. 1973. *Soil Chemical Analysis*. Prentice Hall (India) Pvt. Ltd., New Delhi, p. 260.
- [17] Kaleemurrahman, M. and Gowri, C. 1982. Foliar constituents of the food plants of eri silkworm (*Philosamia cynthia ricini*). *Proc. Natl. Sci. Acad. B-Biological Sci.*, **48**: 349-353.
- [18] Lehninger, A.L., Nelson, D.L. and Cox, M.M. 1993. *Principles of Biochemistry*. Worth Publisher, New York, p.1013.
- [19] Lokanath, R., Shivashankar, K. and Kasiviswanathan, K. 1986. Effect of foliar application of magnesium and micronutrients to mulberry on the quality and production of cocoons. *Indian J. Seric.*, **24**(1): 40-45.
- [20] Lowry, O.H., Rosebrough, N., Farr, A. and Randall, R. 1951. Protein measurement with Folin phenol reagent. *J. Biol. Chem.*, **193**: 265-275.
- [21] Pandey, R.K. 1995. Do leaf tannins affect non-mulberry silkworms? *Indian Silk*, **34** (8): 21-23.
- [22] Popham, H.J.R. and Shelby, K.S. 2006. Uptake of dietary micronutrients from artificial diets by larval *Heliothis virescens*. *J. Insect Physiol.*, **52**: 771-777.
- [23] Raghavaiah, C.V. 2003. Strategy for promotion of eri silk through utilization of castor (*Ricinus communis* L.) for foraging. *Indian Silk*, **42**(1): 33-35.
- [24] Rangaswami, G., Narasimhanna, M.N., Kasiviswanathan, K. and Sastry, C.R. 1976. *Sericulture Manual - 1: Mulberry Cultivation*. Food and Agriculture Organization. Agriculture Services Bulletin. United Nations Organization, Rome, pp.1-97.
- [25] Rao, J.V.K., Sathyanarayana, K., Teotia, R.S. and Kirsur, V.M. 2004. *Eri culture in India. Proceedings of International Seminar on Castor Seed, Castor Oil its Value Added Products*, 8<sup>th</sup> February, Ahmadabad, India, p. 39.
- [26] Rao, M.S., Srinivas, K., Vanaja, M., Rao, G.G.S.N., Venkateswarlu, B. and Ramakrishna, Y.S. 2009. Host plant (*Ricinus communis*) mediated effects of elevated CO<sub>2</sub> on growth performance of two insect folivores. *Curr., Sci.*, **97**:1047-1054.
- [27] Ravikumar, 1988. Western Ghats as a bivoltine region: Prospects, challenges and strategies for its development. *Indian Silk*, **26** (11): 39-54.
- [28] Ray, D., Mandal, L.N, Pain, A.K. and Mandal, S.K. 1973. Effect of NPK and farm yard manure on the yield and nutritive values of mulberry leaf. *Indian J. Seric.*, **12**: 7-12.
- [29] Sadasivam, S. and Manickam, A. 2008. *Biochemical Methods*. New Age International Limited Publishers, New Delhi, p. 270.
- [30] Sannappa, B. and Jayaramaiah, M. 1999. Mineral constituents of selected genotypes of castor, *Ricinus communis* L. *Mysore J. Agric. Sci.*, **33**: 157-161.
- [31] Sannappa, B. and Jayaramaiah, M. 2002. Foliar constituents of selected genotypes of castor, *Ricinus communis* L. *Mysore J. Agric. Sci.*, **36**: 315-321.
- [32] Sarmah, M.C., Chutia, M., Neog, K., Das, R., Rajkhowa, G. and Gogoi, S.N. 2011. Evaluation of promising castor genotype in terms of agronomical and yield attributing traits, biochemical properties and rearing performance of eri silkworm, silkworm, *Samia ricini* (Donovan). *Industrial Crops and Products*, **34**: 1439-1446.

- [33] Sastry, C.R., Jolly, M.S., Subramanyam, M.R. and Rao, Y.R.M. 1988. Studies on the varietal difference in the loss of moisture from harvested mulberry leaves. *Indian J. Seric.*, **27**: 85-91.
- [34] Sengupta, T., Chakravarty, D., Sengupta, D., Sengupta, A.K. and Das, S.K. 2008. Screening of some improved castor genotypes for quality parameters in Gangetic alluvial soil of West Bengal. *Agric. Sci. Digest*, **28**(4): 268-270.
- [35] Shankar, M.A. 1997. *Handbook of Mulberry Nutrition*. Published by G.P. Shetty, Multiplex, Karnataka Agro Chemicals, Bangalore, pp. 19-75.
- [36] Shankar, M.A., Peter, A. and Rangaswamy, B.T. 1999. Mulberry nutrition – Focus on new concepts. In: *Advances in Mulberry Sericulture*. (Eds. M.C. Devaiah, K.C. Narayanaswamy and V.G. Maribashetty). C.V.G. Publication, Bangalore, pp. 93-122.
- [37] Shree, M.P., Anuradha, R. and Nagaveni, V. 2005. Impact of rust disease on the mineral nutrition of mulberry plants. *Sericologia*, **45**(1): 115-121.
- [38] Slansky, F. and Scriber, J.M., 1985. Food consumption and utilization. In: *Comprehensive Insect Physiology, Biochemistry and Pharmacology* (Eds. G.A. Kerkut and L.I. Gilbert). Vol. 4, Pergamon Press, New York, pp. 88-151.

[39]

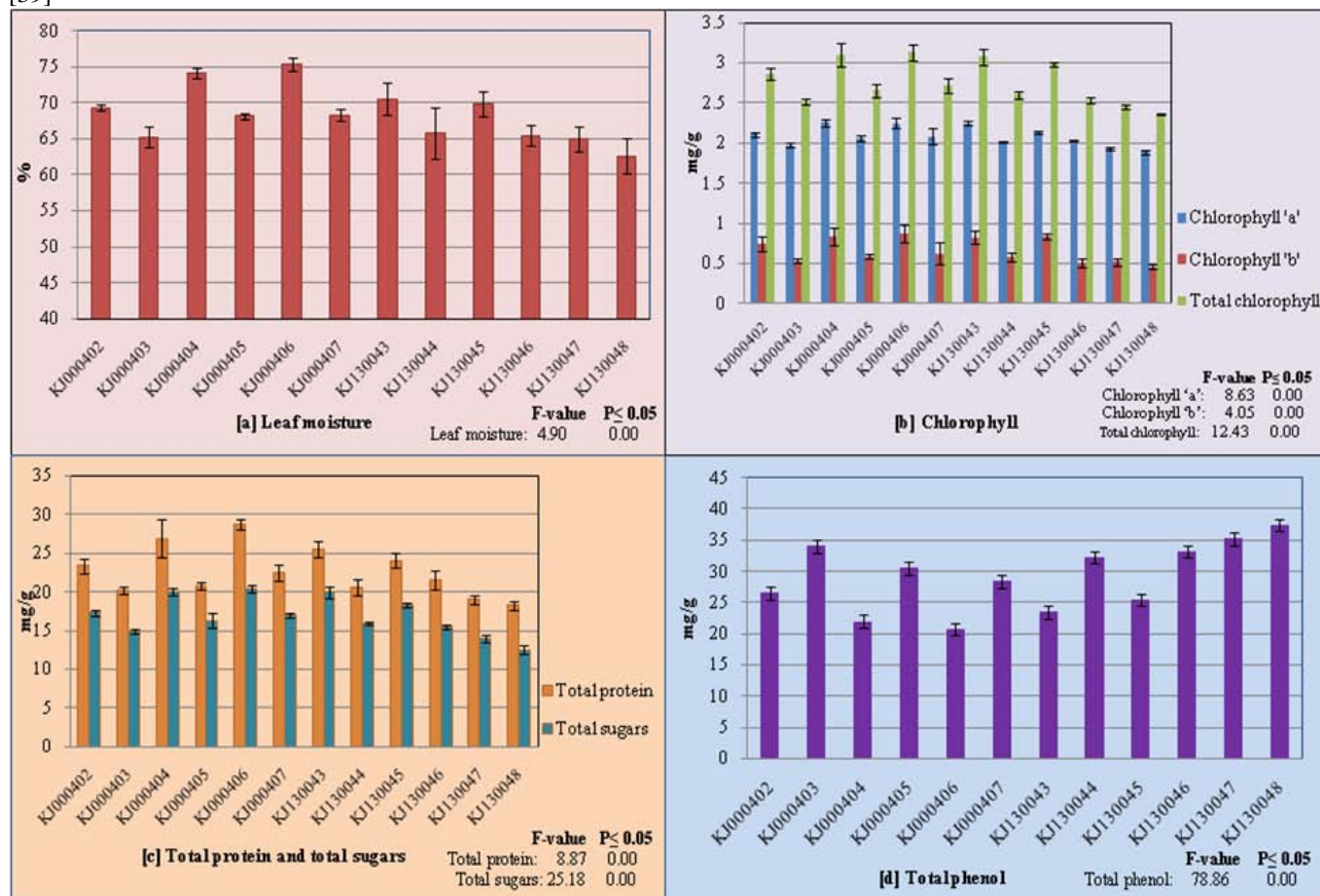


Figure 1: Bio-chemical constituents of identified castor ecotypes in the selected regions of the Western Ghats of Karnataka

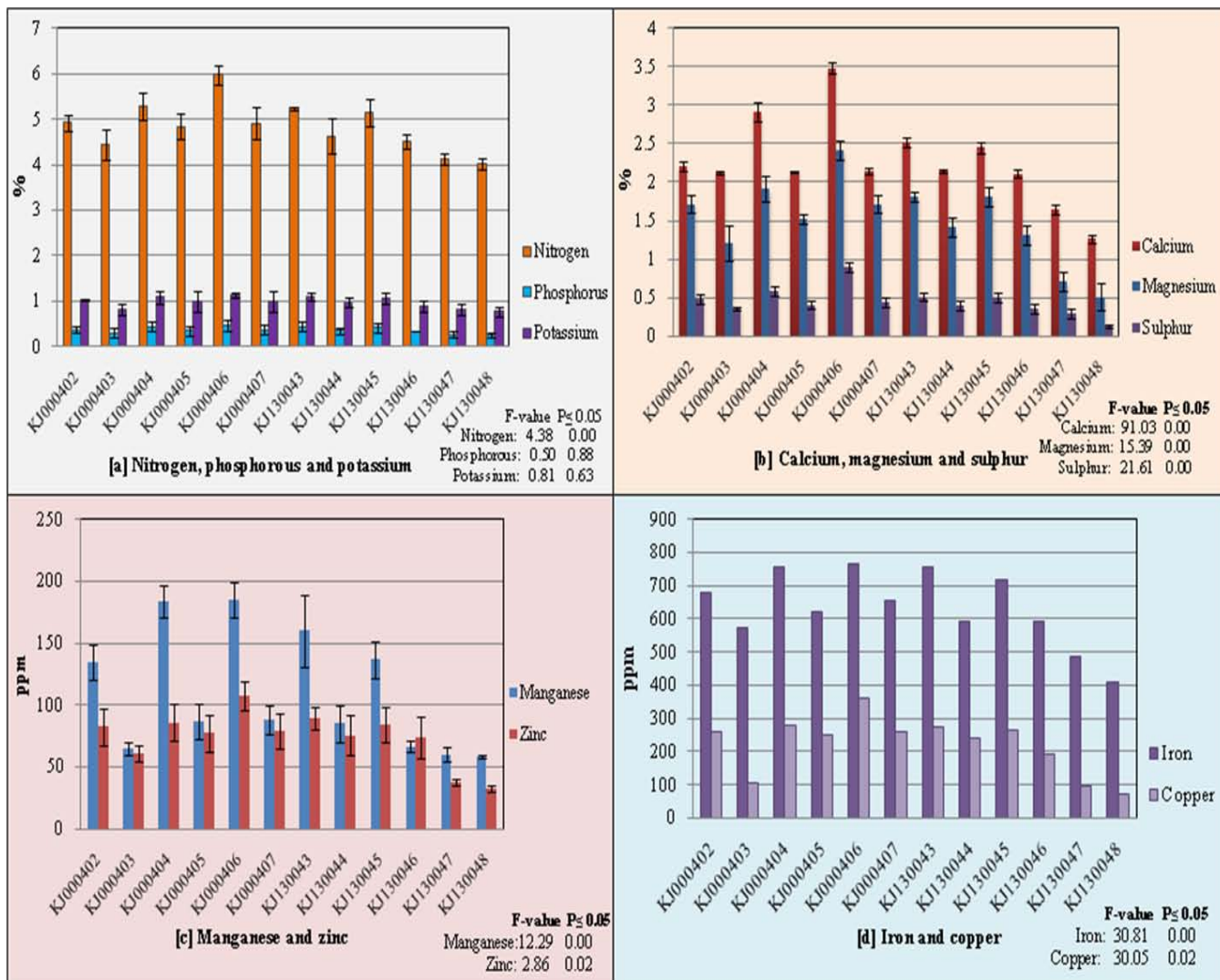


Figure 2: Macro and micro nutrients of identified castor ecotypes in the selected regions of the Western Ghats of Karnataka