

# EFFECT OF POLLINATION BY INDIAN HONEY BEE, *APIS CERANA INDICA* FABR. ON YIELD, YIELD ATTRIBUTING CHARACTERS AND OIL CONTENT OF NIGER, *GUIZOTIA ABYSSINICA* CASS

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**Abstract:** The effect of pollination by Indian honey bee, *Apis cerana indica* were under taken on different quantitative and qualitative parameters of niger during 2011-12. The higher number of capitulum plant<sup>-1</sup> was recorded in treatment total opened (35.17 capitulum<sup>-1</sup>) however the lowest number of capitulum was recorded in treatment of total closed (28.32 capitulum plant<sup>-1</sup>). The maximum capitulum weight was found in treatment control i.e. total opened (0.299 g) which was significantly superior but the minimum capitulum weight was observed in treatment, total closed (0.079 g). The maximum seed yield plant<sup>-1</sup> was recorded in control (total opened 2.473 g plant<sup>-1</sup>) but the least seeds yield plant<sup>-1</sup> was recorded in treatment with total closed (0.606 g plant<sup>-1</sup>). The sterility per cent was noticed significantly superior in treatment with total closed (97.09 per cent) however lower sterility per cent was recorded in treatment with total opened (4.92 per cent). The significantly higher per cent of healthy seeds were found in control plot, total open (95.06 per cent) but the minimum per cent of healthy seeds were found in treatment total closed (2.89 per cent). Maximum seed weight (1000 seeds) was recorded in treatment total open (4.89 g) however the treatment total closed had minimum seed weight (3.28 g). The significantly highest yield was found in treatment total open (353.25 kg/ha<sup>-1</sup>) but the lowest seed yield was observed in treatment total closed (79.50 kg/ha<sup>-1</sup>). Significantly higher oil content was recorded in treatment with total open (33.50 per cent) the lowest oil content was found in treatment with total closed (26.73 per cent). Significantly higher niger seed germination was recorded in treatment with control (80.25 per cent) The lowest germination was found in treatment with total closed (64.25 per cent).

**Keywords :** Indian honey bee, *Apis cerana indica*, Oil content, Pollination, Yield parameters, Niger

## REFERENCES

Cecen, S., Gosterit, A. and Gurel, F. (2007). Pollination effects of the bumble bee and honey bee on white clover (*Trifolium repens* L.) seed production. *J. Apicultural Res.* **46** (2): 69-72.

Dhurve, S.S. (2008). Impact of honey bee pollination on seed production of niger. *M.Sc.(Ag.) thesis Uni. Agril. Sci.* Dharwad.

Gaddanakeri, S.A., Biradar, A.P. and Balikai, R.A. (2008). Effect of niger as an intercrop in sunflower on the activity of honey bees and crop yield. *J. Eco-friendly-Agriculture* **3** (2):171-173.

Getinet, A. and Teklewold, A. (1995). An agronomic and seed quality evaluation of niger (*Guizotia abyssinica* Cass.) germplasm grown in Ethiopia. *Plant Breed* **114** : 375-376.

Hegde, D. M. (2012). Carrying capacity of Indian Agriculture : Oilseed. *Current Science* **102**(6) : 867-873.

Howard, A., Howard, G. L. C. and Rahman, K. A. (1919). Studies in the pollination of Indian crops. *India Dept. Agr. Mem. Bot. Ser* **10** : 195-220.

Marabi, R.S. (2003). Studies on foraging behaviour of Italian honeybees, *Apis mellifera* Lin. and its

effect on pollination of niger (*Guizotia abyssinica* Cass.). *M. Sc.(Ag.) Thesis JNKVV, Jabalpur (M.P.)* PP-47-48.

Munawar, M.S., Raja, S., Siddique, M., Niaz, S. and Amjad, M. (2009). The pollination by honeybee (*Apis mellifera* L.) increases yield of canola (*Brassica napus* L.). *Pak. Entomol* **31** (2) : 103-106.

Mupade, R.V., Kulkarni, S. N. and Kamte, G.S. (2009). Effect of honeybee pollination on qualitative characters of onion. *Ind J. Plant Protection* **37** (1/2) : 186-187.

Pastagia, J. J. and Patel, M. B. (2008). Effect of bee pollination on yield of niger, *Guizotia abyssinica* (L.F.) Cass. *Insect Environment* **14** (2). July-Sep. 53-55.

Sarwar, G., Aslam, M., Munawar, M.S., Raja, S. and Mahmood, R. (2008). Effect of honeybee (*Apis mellifera* L.) pollination on fruit setting and yield of cucumber (*Cucumis sativus* L.). *Pak. Entomol* **30** (2) : 185-190.

Sattigi, H.N., Gundannavar, K.P., Kambrekar, D.N. and kulkarni, K.A. (2005). Effect of bee pollination on niger quality. *Karnataka J. Agril. Sci* **18** (4): 1112-1113.

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