Report on Environmental release of Genetically Engineered Mustard (*Brassica juncea*) hybrid DMH-11 and use of parental events (Varuna bn3.6 and EH2 modbs2.99) for development of new generation hybrids

- Application submitted by Centre for Genetic Manipulation of Crop Plants (CGMCP), University of Delhi South Campus, New Delhi

- CGMCP through extensive R&D work, financially supported by the Department of Biotechnology (DBTand the National Dairy Development Board (NDDB), has developed male sterile and restorer lines using three transgenes- *barnase*, *barstar* and *bar* for hybrid seed production in *B.juncea*, a major oilseed crop of India.

- The summary of the application is detailed below:

Project Title:	Environmental release of Genetically Engineered Mustard (Brassica juncea) hybrid DMH-11 and use of parental events (Varuna bn3.6 and EH2 modbs2.99) for development of new generation hybrids
Common name of the plant:	Indian mustard
Scientific name of the plant:	*Brassica juncea* (L.)
Introduced genes:	Male sterility, MS (barnase line), and restoration of fertility, RF (barstar line) Selectionmarker (bar), required only for hybrid seed production stage.
Field studies (BRL I and BRL II)	Conducted under the overall supervision of the Directorate of Rapeseed Mustard Research (DRMR), Indian Council of Agriculture Research (ICAR).
Biosafety Research Level I (BRL I) field trials 3 locations, for two years	Conducted at 3 locations during 2010-11 and 2011-12. 1. Krishi Vigyan Kendra (KVK), Kumher, Bharatpur, Rajasthan. 2. Agricultural Research Station, Navgaon, Alwar, Rajasthan. 3. Agricultural Research Station, Sriganganagar, Rajasthan.
Biosafety Research Level II (BRL II) field trial 3 locations, for one year	Conducted at 3 locations during 2014-15. 1. Indian Agricultural Research Institute (IARI), New Delhi 2. Punjab Agricultural University (PAU), Ludhiana, Punjab 3. Regional Research Station (RRS), PAU, Bathinda, Punjab
Cloning, expression, purification and production of recombinant pure protein	Experiments carried out at M/s. Premas Biotech Pvt Ltd, Manesar. DSIR recognized, ISO 9001:2008 certified research and manufacturing facility located near New Delhi, India.
Compositional analysis	Conducted at Food and Drug Toxicology Research Centre (FDTRC) of the National Institute of Nutrition (NIN), Hyderabad. It is a Research Institute working under the aegis of Indian Council of Medical Research (ICMR), Ministry of Health and Family Welfare, Government of India.