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Title of the Application	Increasing Hybrid Seed Production through Higher Outcrossing Rate in Cytoplasmic Male Sterile Rice and Related Materials and Methods (hereinafter “1 st HO PCT”)
Application Date	05 June 2016
Application Number	PCT/IB2016/053294
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Publication Link in the WIPO Website

<https://patentscope.wipo.int/search/en/detail.jsf?docId=W02016193953&redirectedID=true>

BRIEF BACKGROUND

The “High Outcross” (HO) trait responsible for increasing hybrid rice seed production has the potential to reduce the cost of hybrid rice seeds, and allow smallholder farmers’ access to more affordable hybrid rice varieties. The HO trait found in the wild relative *Oryza longistaminata* was successfully introduced into cultivated rice. Rice female lines containing the HO trait showed a strong increase in hybrid rice seed production.

This innovation was the basis for the 1st PCT HO application filed by IRRI in 2016.

CURRENT STATUS

Nine (9) National Phase applications were derived from this 1st HO PCT application.

Filing Date	Filing Place	Application Number	Publication Date	Publication Number	Link in the WIPO website	Status
04/12/ 2017	USA	15579247	14/06/2018	2018-0160638-A1	https://patentscope.wipo.int/search/en/detail.jsf?docId=US219981087&redirectedID=true	Published Under Substantive Examination
20/12/2017	Europe	16729639.1	11/04/2018	3302036	https://patentscope.wipo.int/search/en/detail.jsf?docId=EP214442602&recNum=1&office=&queryString=FP%3A%283302036%29&prevFilter=&sortOption=Pub+Date+Desc&maxRec=4	Decision to discontinue on 10 April 2020
05/12/2017	China	201680033206.1	08/03/2018	CN 107787181 A	https://patentscope.wipo.int/search/en/detail.jsf?docId=CN213737774	Decision to discontinue on 10 April 2020
12/12/2017	Australia	2016272921	08/12/2016	2016272921	https://patentscope.wipo.int/search/en/detail.jsf?docId=AU208432408	Decision to discontinue on 10 April 2020
13/12/2017	India	201727044863	20/04/2018	201727044863 A	https://patentscope.wipo.int/search/en/detail.jsf?docId=IN215490767&redirectedID=true	Published Under Substantive Examination
05/12/2017	Brazil	BR 11 2017 026243 6	18/09/2018	112017026243	https://patentscope.wipo.int/search/en/detail.jsf?docId=BR231357469	Decision to discontinue on 3 April 2020
29/11/ 2017	Philippines	1-2017-502183	08/12/2016	1-2017-502183	https://patentscope.wipo.int/search/en/detail.jsf?docId=PH222137052	Published Under Substantive Examination
28/12/2017	Indonesia	PID201709844	31/07/2018	2018/07005	https://patentscope.wipo.int/search/en/detail.jsf?docId=ID224147056	Decision to discontinue on 10 April 2020
04/01/2018	Vietnam	1-2018-00038	N/A	N/A	N/A	Decision to discontinue on 03/12/2018

In December 2018, it was decided to discontinue the patent application in Vietnam, based on an analysis of the hybrid rice seed market in Vietnam (most hybrid rice seeds used in Vietnam are imported from India), and a review of the (cost/benefit) ratio of the Vietnam patent application. In 2020, five (5) National Phase applications filed in Europe, China, Australia, Brazil and Indonesia were also discontinued.

IRRI scientists continue to work actively on the HO trait, to better understand and characterize the mechanisms involved, and to produce new elite parental lines with the non-GM HO trait.

Furthermore, IRRI, as a non-profit international organization, promotes responsible technology transfer and intellectual property management in accordance with its Intellectual Property and Commercialization Policy (IP&C Policy)¹ and with the CGIAR Principles on the Management of Intellectual Assets (“IA Principles”)².

¹Available at <http://books.irri.org/Approved-IPC-Policy-291017.pdf>

²Available at <https://storage.googleapis.com/cgiarorg/2018/03/CGIAR-IA-Principles.pdf>