

The Entomological Society of India

New Delhi, 110 012

NOMINATION FORM FOR ESI SENIOR ENTOMOLOGIST AWARD 2021

1. **Name in full** (in block letters): **DR SARWAN KUMAR**
2. **Date & Place** (State, Country)
of Birth: (Attach proof) **18 February 1977**
Ludhiana, Punjab, India
3. **Nationality:** **Indian**
4. **Field of specialization:** **Economic Entomology (Host Plant Resistance)**
5. **Present Position/Designation:** **Senior Entomologist**
6. **Address:** **Department of Plant Breeding and Genetics,**
Punjab Agricultural University, Ludhiana-141 004

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(Give STD code for Telephone & Mobile No.)

7. Academic career and professional attainments

(a) Degree	University/Institution	Year	Distinction, if any
PhD (Entomology)	CCS Haryana Agricultural University, Hisar	2005	-
MSc (Entomology)	Punjab Agricultural University, Ludhiana	2001	-
BSc Agri (Hons.)	Punjab Agricultural University, Ludhiana	1999	Dr DS Sohi Merit Scholarship

(b) Position held	Institution	Period of appointment
Senior Entomologist	Punjab Agricultural University, Ludhiana	Sep 2018-Present
Assistant Entomologist	Punjab Agricultural University, Ludhiana	Dec 2006-Sep 2018
Assistant Professor of Entomology	Punjab Agricultural University, Ludhiana	Sep 2006-Dec 2006

8. Special attainments of the nominee (maximum 250 words)

The applicant screened a diverse collection of germplasm lines against mustard aphid and found one wild *Brassica fruticulosa* to be resistant (**Euphytica 2011**). Phenotyped hundreds of *B. fruticulosa* x *B. juncea* introgression lines carrying genomic introgression from *B. fruticulosa*, among which some showed consistent resistant reaction (**BMC Genetics 2012**). Also reported *Brassica carinata* to be used as trap crop for the large white butterfly, *Pieris brassicae* (**Journal of Pest Science 2017**). Published **42 research articles** in journals of National and International repute, **3 scientific reviews**, **6 book chapters**, **22 abstracts** and **2 teaching manuals**. Also published **58 extension articles** and delivered **3 TV and 3 radio talks** along with lectures during field days/training camps etc.

Associated with the testing of quality mustard variety **RLC 1, RLC 3 (first Canola Raya in India)**, Canola *Gobhi Sarson* **GSC 7**, African *sarson*: PC 6 (**world's first determinate oilseed Brassica variety suitable for mechanical harvesting**), sunflower hybrid **PSH 569, PSH, 996, DK 3849, PSH 1962**, sesame variety **RT 346, Pb. Til No. 2**, toria variety **TL 17**, Groundnut variety: **TG 37A** and linseed variety **LC 2063** released in the state for general cultivation. Besides this, also associated with testing of *raya* variety **Giriraj, PBR-357 and RLC 2** released at **National level** for cultivation in zone II of India under irrigated conditions and **PBR 378** released for cultivation in zone II under rainfed conditions. Has one recommendation on optimum sowing time in sesame for jassid and phyllody management. **Working in Indo-UK project "Genomics led improvement of biotic and abiotic stress tolerance in mustard rape for economic and environmental sustainability"** funded by **DBT, India and BBSRC, UK**; and acting as Co-PI of DBT funded project, "Identification of chromosomal segments and genetic localisation of QTLs/gene(s) associated with aphid/sclerotinia resistance in existing sets of *Brassica juncea* alien introgression lines" under Centre of Excellence in Brassicas. Besides this, the applicant is **PI of the entomology programme of All India Coordinated Research Project on Rapeseed-Mustard** from 2014-15 crop season. He is also acting as Editor, Journal of Insect Science.

Attended 13th International Rapeseed Congress, June 05-09, 2011, Prague, Czech Republic, 14th International Rapeseed Congress, July 05-09, 2015, Saskatoon, Saskatchewan, Canada and 15th International Rapeseed Congress, June 16-19, 2019 Berlin and made paper presentations. **Awarded Australian Government's Prestigious Endeavour Research Fellowship (Australia Awards) in November 2017 to work at The University of Queensland, Brisbane, Australia from April 01 to August 01, 2018 (four months)**. **Panelist speaker** at GCIRC Technical Meeting, Sep 28-29, 2021, Poland. Acted as Member of ICAR monitoring team for monitoring of trials under AICRP on Rapeseed-Mustard and as rapporteur and co-chairman of entomology sessions in AICRP-RM group meets. **Awarded Fellow**, Indian Society of Oilseeds Research for significant contributions in oilseeds research and development in India.

9. List 20 most important research publications in chronological order. For each publication, give name(s) of the author(s), indicate the corresponding author by “*” after his/her name, year of publication, full title of the paper, name of the journal, volume No. and page Nos. and NAAS rating during the 2021 for ESI senior scientist award

Sl. No.	Details of Publications in the format given above	NAAS Journal ID and (Score)	Number of Citations
1.	Palial S, Kumar, S.* , Atri C, Sharma S and Banga SS. 2021. Antixenosis and antibiosis mechanisms of resistance to turnip aphid, <i>Lipaphis erysimi</i> (Kaltenbach) in <i>Brassica juncea-fruticulosa</i> introgression lines. Journal of Pest Science doi: 10.1007/s10340-021-01418-8	J409, 10.58	0
2.	Agrawal N, Gupta M, Atri C, Akhtar J, Kumar S , Heslop-Harrison PJS, Banga SS.* 2021. Anchoring alien chromosome segment substitutions bearing gene(s) for resistance to mustard aphid in <i>Brassica juncea-B. fruticulosa</i> introgression lines and their possible disruption through gamma irradiation. Theoretical and Applied Genetics 2021 Jun 23. doi: 10.1007/s00122-021-03886-z. Epub ahead of print. PMID: 34160642.	T057, 10.44	1
3.	Kumar, S.* and Sharma, R. 2020. Field efficacy of insecticides against two different feeding guilds: the sap sucking <i>Lipaphis erysimi</i> (Kaltenbach) and foliage feeder <i>Pieris brassicae</i> (L.) infesting Indian mustard. <i>Journal of Oilseed Brassica</i> 11 (1): 29-33.	J399, 4.77	1
4.	Palial, S.*, Kumar, S. and Sharma, S. 2018. Biochemical changes in the <i>Brassica juncea-fruticulosa</i> introgression lines after <i>Lipaphis erysimi</i> (Kaltenbach) infestation. <i>Phytoparasitica</i> 46 : 499-509. DOI: 10.1007/s12600-018-0686-2	P084, 7.14	5
5.	Kaur, J. and Kumar, S.* 2018. Evaluation of Brassicaceous wild relatives for resistance to the large white butterfly, <i>Pieris brassicae</i> (L.). <i>Journal of Agricultural Science and Technology</i> 20 : 759-774.	J023, 6.90	0
6.	Kumar, S.* 2017. Potential of Ethiopian mustard, <i>Brassica carinata</i> as a trap crop for large white butterfly, <i>Pieris brassicae</i> infesting Indian mustard, <i>Brassica juncea</i> . <i>Journal of Pest Science</i> 90 :129-137. DOI 10.1007/s10340-016-0771-6	J409, 10.58	11
7.	Kumar, S.* 2015. Evaluation of petroleum spray oil against turnip aphid, <i>Lipaphis erysimi</i> (Kaltenbach) infesting oilseed Brassica. <i>International Journal of Bioresource and Stress Management</i> 6 (5): 583-590. DOI: 10.5958/0976-4038.2015.00088.3	I187, 5.11	2
8.	Kumar, S.* 2015. Relative abundance of turnip aphid and the associated natural enemies on oilseed <i>Brassica</i> genotypes. <i>Journal of Agricultural Science and Technology</i> 17 : 1209-1222	J023, 6.90	11
9.	Kumar, S.* and Sangha, M.K. 2013. Biochemical mechanism of resistance in some brassica genotypes against <i>Lipaphis erysimi</i> (Kaltenbach) (Homoptera: Aphididae). <i>Vegetos</i> 26 (2): 387-395. doi:	V008, 5.27	9

	10.5958/j.2229-4473.26.2.103		
10.	Atri, C., Kumar, B., Kumar, H., Kumar, S. , Sharma, S. and Banga, S.S.* 2012. Development and characterization of <i>Brassica juncea-fruticulosa</i> introgression lines exhibiting resistance to mustard aphid, <i>Lipaphis erysimi</i> (Kalt.). <i>BMC Genetics</i> 13 : 104, doi: 10.1186/1471-2156-13-104	B011, 8.57	35
11.	Kumar S. , Atri C., Sangha M. K. and Banga S. S.* 2011. Screening of wild crucifers for resistance to mustard aphid, <i>Lipaphis erysimi</i> (Kaltenbach) and attempt at introgression of resistance gene(s) from <i>Brassica fruticulosa</i> to <i>Brassica juncea</i> . <i>Euphytica</i> 179 (3): 461-470. DOI 10.1007/s10681-011-0351-z	E116, 7.61	55
12.	Dhawan, A.K, Singh, S. and Kumar, S.* 2009. Integrated Pest Management (IPM) helps reduce pesticide load in cotton. <i>Journal of Agricultural Science and Technology</i> 11 (Supplementary Issue): 599-611	J023, 6.90	28
13.	Kumar, S.* , and Saini, R. K. 2009. Pupal duration, survival and occurrence of summer and winter diapause in <i>Helicoverpa armigera</i> (Hübner) under field conditions. <i>Journal of Entomological Research</i> 33 (1): 69-76	J191, 5.89	1
14.	Kumar, S.* , Saini, R. K. and Ram, P. 2009. Natural mortality of <i>Helicoverpa armigera</i> eggs in cotton ecosystem. <i>Journal of Agricultural Science and Technology</i> 11 (1):17-25	J023, 6.90	34
15.	Kumar, S.* 2009. Efficacy of biocontrol agents against <i>Lipaphis erysimi</i> (Kaltenbach) (Homoptera: Aphididae) infesting Indian mustard. <i>Journal of Oilseeds Research</i> 26 (Special Issue): 409-410	J400, 4.59	0
16.	Sandhu, P. S., Kaur, S., Sheoran, P.* and Kumar, S. 2009. Influence of sowing dates on development of phyllody on sesame, <i>Sesamum indicum</i> L. <i>Journal of Oilseeds Research</i> 26 (Special Issue): 495-496	J400, 4.59	0
17.	Kumar, S.* and Saini, R. K. 2008. Feeding Preference and damage potential of <i>Helicoverpa armigera</i> (Hübner) on different promising cotton genotypes/hybrid. <i>Journal of Agricultural Science and Technology</i> 10 (Supplementary Issue): 411-420	J023, 6.90	10
18.	Kumar, S.* and Saini, R. K. 2007. Moth emergence pattern of <i>Helicoverpa armigera</i> (Hübner) in cotton ecosystem. <i>Journal of Entomological Research</i> 31 (1): 5-9	J191, 5.89	3
19.	Dhawan, A. K., Singh, S., Kumar, S.* and Kumar, T. 2007. Impact of Insecticide Resistance Management (IRM) Strategy on Insecticide Use Pattern during Different Growth Stages of Irrigated Cotton in Punjab. <i>Pesticide Research Journal</i> 19 (1): 67-72	P042, 5.49	0
20.	Kumar, S.* and Saini, R. K. 2005. Incidence of bollworms in promising cultivars of cotton in Haryana. <i>Journal of Cotton Research and Development</i> 19 (2): 277-280	J168, 4.78	3

10. List of 5 most important Products/Technologies/Discoveries/Patents by the nominee

(Please see item 1 (b) in the Guidelines for Evaluation and list the products, technologies and software in the order scoring maximum to minimum score)

Sl. No	Details of Product/Technology/Discoveries/Software * (Also write in one bullet point its impact in terms of adoption, commercialization and revenue generated)	Patent No./Country of patent Release/ notification details Commercialization	List according to category (I,II) as given in 2 of the guidelines for evaluation	Whether Nominee is a Developer, Co-developer or Associate
1.	India's first canola mustard hybrid RCH 1 notified by CVRC (It was among the 35 varieties dedicated to national by our Hon'ble PM Modi Ji https://www.news18.com/news/india/pm-modi-to-dedicate-35-crop-varieties-with-special-traits-to-nation-on-today-4254884.html)	2021	2 (II) Plant variety gazette notified: RCH 1	Associate
2.	Mustard hybrid PHR 126 notified by CVRC	2021	PHR 126	Associate
3.	Canola mustard variety RLC 3 notified by CVRC	2021	RLC 3	Associate
4.	Quality mustard variety RLC 2 notified by CVRC	Notification No. S.O.3540(E) dated 22/11/2016	RLC 2	Associate
5.	Raya mustard variety PBR 378 notified by CVRC	Notification No. S.O.3540(E) dated 22/11/2016	PBR 378	Associate
6.	Gobhi Sarson variety GSC 7 notified by CVRC	Notification No. S.O.1228(E) dated 07/05/2015	GSC 7	Associate
7.	Raya mustard variety PBR 357 notified by CVRC	Notification No. S.O.2680(E) dated 01/10/2015	PBR 357	Associate
8.	Quality mustard Raya variety RLC 1 notified by CVRC	Notification date 03/08/2012	RLC 1	Associate
9.	Sunflower hybrid PSH 1962 notified by CVRC	Notification No S.O.3540(E) dated 22/11/2016	PSH 1962	Associate
10.	Sunflower hybrid PSH 996 notified by CVRC	Notification No S.O.112(E) dated 12/01/2015	PSH 996	Associate
11.	Sunflower hybrid PSH 569 notified by CVRC	Notification No S.O.733(E) dated 01/04/2010	PSH 569	Associate
12.	Groundnut variety J 87 notified by CVRC	Notification No. S.O.500(E) dated 29/01/2021	J 87	Associate

13.	Linseed variety LC 2063 notified by CVRC	Notification No. S.O.1108(E) dated 08/05/2008	LC 2063	Associate
14.	Sesame variety Punjab Til No. 2 notified by CVRC	-	Punjab Til No. 2	Associate

* Marks shall be awarded only for the claims duly substantiated

11. Externally Funded Projects

Projects funded by ICAR, CSIR, DST, DBT, other government and private agencies.

1. 'Genomics led improvement of biotic and abiotic stress tolerance in mustard rape for economic and environmental sustainability' funded by BBSRC, UK and DBT, India (CoPI) (Rs 4561672)
2. 'Marker assisted stacking of genes associated with seed quality and aphid resistance in high yielding mustard cultivars' funded by DST SERB (CoPI) (Rs. 29,92,264)
3. 'Identification of chromosomal segments and genetic localization of QTLs/gene(s) associated with aphid/sclerotinia resistance in existing sets of *Brassica juncea* alien introgression lines' funded by DBT (CoPI) (Rs 66,10,000)

12. Involvement in Teaching/Extension Activities

Teaching

UG and PG Courses Taught

- Semester II, 2019-20; Ent 507 Plant Resistance to Insects (Graduate/Masters and PG/PhD level course)
- Semester II, 2006-07, 2007-08, 2008-09; Ent 425 Insect Pests of Field Crops (Undergraduate (Honours) level course)
- Semester I, 2006-07, 2007-08, 2008-09, 2010-11, ; Ent 301 Applied Entomology (UG level course)
- Semester I, 2009-10, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15, 2016-17, 2017-18, 2019-20; Ent/PI Path 91 General Plant Protection/ Plant Protection-I (UG level course)
- Semester I, 2015-16, 2016-17; Env 301 Environment Science and Disaster Management (UG level course)
- Semester I, 2017-18, 2018-19, 2019-20; Ent 302 Insect Pests of Crops, Stored Grains and their Management (UG level course)
- Semester II, 2017-18, 2018-19; Ent/ PI Path 202 Principles of Integrated Insect-Pest and Disease Management (UG level course)
- **Supervisor of PG Students: Guided 3 (MSc), Guiding: 2 PhD**
 - One MSc student was Awarded Best All Round Entomology Student Gold Medal
 - Teaching Manuals developed: 2

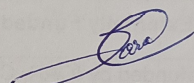
Extension

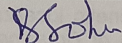
- Published 58 extension articles
- Delivered 4 TV and 3 radio talks on insect-pest management in oilseed crops
- Field days: 2
- Demonstration at Kisan Mela: 30

Transfer of pest management technology to farmers through Farmers' Fairs organized every six months, lectures, exhibitions

I certify that the information given in the form is correct.

Date: 01-11-2021


Signature of Nominee

Particulars of Nominator	Remarks about the suitability of the nominee
Signature of the Nominator:  Name and Dr VS Sohu Designation: Head Address: Department of Plant Breeding and Genetics Punjab Agricultural University, Ludhiana Date: 1-11-2021	Dr Sarveen Kumar, Oilseeds Entomologist has made significant research contributions in oilseeds pest management and variety development during the last 15 years. He has published his research work in peer reviewed journals of national and international repute and he has been involved in national and international projects. I strongly recommend him for the award.

GUIDELINES FOR EVALUATION OF NOMINATIONS FOR ESI SENIOR ENTOMOLOGIST AWARD 2021

- ❖ The primary objective of this category of awards is to encourage senior scientists below the age of 50 years of promise and creativity reflected through their contributions to entomology.

ALLOCATION OF MARKS

Allocation of marks for different criteria		(Total 100 marks)
1.	Publications	– maximum 60
2.	Products, Technologies, Discoveries and	– maximum 20 marks
3.	Patents	Externally Funded Projects
4.		– maximum 10 marks
5.	Involvement in Teaching/Extension activities	– maximum 05 marks
	Evaluation committee	– maximum 05 marks

1. PUBLICATIONS

(Max. 60 marks)

- (i) Research publications will be given marks according to the 2021 NAAS score of Journals.
- (ii) First author and corresponding author will get full marks in a publication and rest of the authors gets 50% marks.
- (iii) The nominees should submit the **list of their 20 best research publications, of relevance to Entomology, in chronological order**. For each publication give name(s) of the author(s), indicate the corresponding author by asterisk** after his/her name, year of publication, full title, name of the journal, volume No. and page Nos. For NAAS scoring of journals, list of Journals as identified by NAAS and available on Academy website: www.naasindia.org may be consulted and the Journal ID should be mentioned in the column provided in the proforma against each publication. For Thomson Reuters Impact Factor (IF) journals, NAAS Score = $6.0 + IF$ with capping on 20.00.
- (iv) The **NAAS Score of all 20 publications will be added and multiplied by 0.3** with a cap of maximum of 60 marks
- (v) Attach one set of reprints of the 20 most important publications listed in the nomination, and also submit soft copies of their PDF in one file. A

2. PRODUCTS, TECHNOLOGIES, DISCOVERIES AND PATENTS

Max. 20 marks

I. Developer of each patented product with details of patent No., trade Marks and IP protection (commercialized/not commercialized)/ plant variety Gazette Notified by the CVRC/SVRC and released by Central Sub-Committee on crop Standards, Notification and Release with evidence/ biocontrol strains, Discoveries of new species/ new genus described following standard procedures/ first reports/records of insects authenticated by accredited body (national level) or publication /Germplasm registered for insect pest resistance, diagnostic kit, process, concept, methodology, software/ website/app development/ Database management/ Expert system developed/ Decision support system /models/New molecules/ chemical and biopesticide formulations duly validated by recognised institutions/ authority. For online products, URL should be accessible

4 marks each

II. Research findings that become sustainable practices among the stakeholders. These include integrated pest management modules, insect conservation methods, post-harvest pest management technologies, institutional innovations, improvement and innovative extension efforts leading to large scale diffusion and adoption of technologies approved by AICRPs/ SAUs/ ICAR/ such organisations

3 marks each

****Please note that products, technologies, discoveries mentioned at sl. No. 10 of the Nomination form should be other than those claimed in 20 most important publications. Documentary evidence should be enclosed for the patents/ copyright, adoption of products and technologies and their impact on livelihood of farmers/commercial value and acceptance by clients/stakeholders.***

Developer (one) shall be awarded 100% marks, Co-developers (max. two) 75% marks and associates 50% marks. If publication first author and corresponding author will get full marks in a publication and rest of the authors 50% marks.

3. EXTERNALLY FUNDED PROJECTS

(Max. 10 marks)

- Principal investigator of each project (minimum of 10 lakhs) funded by ICAR, CSIR, DST, DBT, state governments of at least more than one year completed (Both completed and currently active projects are considered) P
(2 marks each)
- Co-Principal investigator of each project (minimum of 10 lakhs) funded by ICAR, CSIR, DST, DBT, state governments of at least more than one year completed C
(1 mark each)

4. INVOLVEMENT IN TEACHING/EXTENSION ACTIVITIES

(Maximum 05 marks)

A. Teaching

- i. **One mark** each for Doctoral degree awarded and **0.5 mark** for each Master's degree awarded as a chairperson of advisory committee
- ii. Teaching aids developed (Teaching manuals for course, study tour, industrial visit for students organized), supported with appropriate evidence and recognised by suitable official body **0.5 mark for each**

B. Extension

- i. Front Line Demonstration conducted – **1.0 mark for each**
- ii. Field Day/ farmers fair, demonstration, exhibitions, Radio talks, TV presentations - **0.5 mark for each**
- iii. Extension teaching aids developed- **0.5 mark for each**