

## SWAPAN KUMAR DATTA

**Date of birth:** 28 January 1953

**Field of Specialization:** Plant Biotechnology  
(Transgenic research, Haploidy and policy development)

**Designation:** Sir Rash Behari Ghosh Professor of Calcutta University & Coordinator, DBT- Programme support on “Translational research of transgenic rice”



### Address:

**Prof. Swapan K Datta**

UNIVERSITY OF CALCUTTA

Rash Behari Ghosh Professor

Plant Molecular Biology and Biotechnology Lab.,

Botany Department

35, Ballygunge Circular Road, Kolkata-700 019

Tel: 09830668907 ([swpndatta@yahoo.com](mailto:swpndatta@yahoo.com))

Fax: 0091-33-2461-4849

### Education

Degree	University/ Institution	Year	Remarks
B Sc. (Hons) Botany	Presidency College, CU	1972	Botany (Hons) Chemistry, Zoology
M Sc. Botany	Calcutta University	1974	Botany
PhD Plant Science	Calcutta University	1980	Developmental Biology
IP-Biotechnology management	Cornell University, USA	2003	IPR-Course

### Awards/Special Attainments

Awarded DAAD Fellowship, Germany (1985-1986)

Awarded FMI Fellowship, Switzerland (1987)

Awarded ETH- Senior Scientist (Group Leader) at Zurich (1987-1993)

Elected Fellow of National Academy of Agricultural Sciences in 2005 (FNAAS)

Elected Fellow of National Academy of Sciences in 2006 (FNASc)

TATA Innovation Fellow in 2007 by DBT, Govt. of India

Recipient of Panchanan Maheshwari Medal in 2006 for significant contributions in Experimental Embryology and Plant Biotechnology

Recipient of SM Sircar Memorial lecture award in 2008 at Kolkata by the Botanical Society of Bengal

CGIAR Science award for the significant research contributions and publication “Enhanced iron and zinc accumulation in transgenic indica rice with the ferritin gene, published in Plant Science, 64: 371-378, 2003

Best paper award “Transgenic rice for submergence tolerance” by Crop Science Society of Philippines, 1997

**Special attainments:**

Developed pioneering work on isolated microspore embryogenesis in cereals;  
 First demonstration of genetically engineered homozygous indica rice published in Nature Biotechnology (1990) and followed up work in field evaluation of genetically improved rice for insect, disease resistance and nutrition improvement published in Nature Biotechnology, Nature, TAG, MGG, Annals of Botany, Phytochemistry, Plant J & PBJ, Crop Science, Plant Cell Reports, and Mol Breeding etc.

**(c) Other relevant information**

Associated with Ramakrishna Mission, Vivekananda Centenary College, WB as a Lecturer in Botany (1976-79)

Visva-Bharati University, Santiniketan (1979-1989) as a Reader in Botany

UC-Davis, USA as a Visiting Associate Professor (1990)

Actively involved in research and training of PhD students at IRRI, Philippines and in India

During the tenure at IRRI, trained and supervised 10 PhD students as a collaborative research with Indian Institutes/Universities; Students submitted their theses in India.

**Actively** participate as a member of the taskforce of DBT/Member Agriculture Commission, WB & other Govt/private agencies for implementation of balanced vision of plant biotechnology and relevant use in India and other policy issues related to Plant Biotechnology and Agriculture policy.

**Associate Editor:** Transgenic research, Plant Biotechnology

**Reviewer:** PNAS, Nature Methodology, TAG, MGG, Plant Science, PCR, Plant J, Plant Biotech J, Euphytica etc.

**Coordinator DBT-programme** support on “Translational research of transgenic rice”

**Member:** Research Advisory committee at Central Rice Research Institute, Cuttack, Central Research Institute of Jute and allied Fibres, Expert member at Bose Institute, BCKV, DST, WB, DBT, New Delhi etc.

**Research contributions and recognition:**

Dr Swapan Kumar Datta is a well-known Plant Biotechnologist worldwide and in India. Young students, researchers and research fellows are quite familiar with his pioneering work in haploid research in cereals, molecular biology and genetic engineering research for rice improvement. Swapan Datta has always been a front-runner in his areas of science and a leader in scientific innovation. He has demonstrated the application of Plant Biotechnology relevant to India. He provided a clear vision of why Biotechnology is needed in India, which was published by AAAS in *Science Forum* (later reprinted in British Nutrition Journal and AgBioforum). His balanced views and vast working knowledge on genetically modified organisms is well accepted and would be an asset for the scientific policy document. He is involved in worldwide research collaboration on application of genomics and gene technology for crop improvement with public and private organizations. He is actively involved in the Indian National Biotechnology Network and contributed many presentations Nation-wide. He took initiative to develop collaborative research activities in India and abroad. He has been invited to participate many International and National seminars as a Keynote/Plenary and symposia speaker. Nationwide and International recognitions can easily be seen from the list (selected) of symposia he attended and presented talks and participate in discussions.

**Key Note speaker at the National Coastal Ecosystem meeting at Kolkata, 2007**

1. International Society of Plant Molecular Biology (Singapore, 1996; Quebec, Canada, 2000);
2. International Society of Plant Tissue Culture and Biotechnology (Florence, 1994, Israel, 1998),
3. Invited speaker at the Entomological Society of America (ESA), San Diego, 2001,
4. Member in the advisory committee of the IAPTCB for the meeting held at Orlando, USA (2002) and for the meeting held at Beijing (2002-2006).

5. Convener and invited speaker of World Rice Research Conference at Tsukuba, Japan; International Council member of Biopesticides 4 and convener and presenter in the Bt technology session;
6. Invited speaker at the Diamond Jubilee Symposium of the Indian Society of Genetics (New Delhi, 2001),
7. Invited speaker at the FAO-Food security meeting at the MS Swaminathan Foundation (Chennai, 2001)
8. Invited speaker at the Joint meetings of delegation from the USA and India on Agri-Biotechnology from 4-6 October, 2006 at Chennai
9. Invited speaker at the Botanical Society of India as a recipient of Panchanan Maheshwari medal award (9-11 October), 2006 at Udaipur
10. Invited speaker at the International Meeting on Biotic and abiotic responses in plants, ICGEB, New Delhi, 2006
11. Invited speaker as resource person for the Training workshop on Bio-safety, Ministry of Environment, Kolkata, 2007
12. Invited speaker at the National Jute Improvement meeting at Kolkata, 2007
13. Invited speaker in many International meetings on Food- and Bio-safety issues, workshops in Asia, Europe and USA
14. Dr Datta was elected HARVESTPlus Rice Crop Leader to lead the CGIAR Challenge Program on Breeding Crops for better Nutrition. He made significant contributions in extending and expanding this project and work in India.

Participated in the policy dialogues of FAO-Food security meeting at MS Swaminathan Foundation, Chennai, India (2002); CPD (Center for Policy Dialogue)- meeting at Dhaka, Bangladesh (2003) on Sustainable Agricultural Growth in Bangladesh: “Should we go for Biotechnology for Rice Improvement?”; Humanitarian Board Meeting at NY, USA; Private-Public partnership in Agricultural Biotechnology at Varoda, India; IRRI, Philippines; Food-safety of Biotechnology products at Washington, USA (2003); HarvestPlus meetings at several places; Invited to write many contributed chapters for the books and scientific notes and views from Science, ISB (USA), CBD (Bangladesh), MS Swaminathan Foundation (India) etc.

Published more than 118 research papers, published in reputed journals including Nature, Nature Biotechnology (3 papers), Plant Journal, Molecular Genetics and Genomics (2 papers), Plant Molecular Biology, Theoretical Applied Genetics (9 papers), Plant Science (6 papers), Plant Cell Reports (8 papers), Euphytica (2 papers), Crop Science (2 papers), Plant Breeding, Annals of Botany (2 papers), Phytochemistry, Physiol. Plant., Molecular Breeding (2 papers), Plant Biotech Journal (3 papers), Current Science (5 papers), etc. Many research papers have been cited worldwide including in Textbooks in India and by International publishers such as Springer, Oxford, etc. An edited book “Pathogenesis related proteins in plants” by CRC Press, USA is well appreciated and recognized by fellow colleagues working in this field.

All the above-mentioned information speaks itself as the recognition and appreciation of the contributions made by Dr Datta.

#### **Major contributions:**

- 1. Developed homozygous indica ‘Golden Rice’ with enriched pro-vitamin A in polished seeds (transferred to Bangladesh for field evaluation and further use)**
- 2. Developed high iron rice and transferred to USA and India for research and further use.**
- 3. Developed and Field evaluated successfully hybrid *Bt* and *Xa21* rice in China, India and Philippines and developed transgenic rice with enhanced sheath blight resistance with PR-genes for sheath blight resistance and plant protection**
- 4. Policy and IPR management in global agricultural sciences**

### Important 10 Publications (Dr Swapan K Datta with his team, co-workers and collaborators)

1. **Datta SK**, Peterhans A, Datta K, and Potrykus I (1990) Genetically engineered fertile Indica-rice plants recovered from protoplasts. *Bio/Technology* (current name, **Nature Biotechnology**) 8:736-740
2. Lin W, Anuratha CS, Datta K, Potrykus I, Muthukrishnan S, and **Datta SK** (1995) Genetic engineering of rice for resistance to sheath blight. *Bio/Technology* (current name, **Nature Biotechnology**) 13:686-691
3. Tu J, Zhang G, Datta K, Xu C, He Y, Zhang Q, Khush GS, and **Datta SK** (2000) Field performance of transgenic elite commercial hybrid rice expressing *Bacillus thuringiensis*  $\delta$ -endotoxin. **Nature Biotechnology** 18:1101-1104
4. Parkhi V, Rai M, Tan J, Oliva N, Rehana S, Bandyopadhyay A, Torrizo L, Ghole V, Datta K, **Datta SK** (2005) Molecular Characterization of marker free transgenic lines of indica rice that accumulate carotenoids in seed endosperm. **Molecular Genetics Genomics** 274:325-336
5. Sasaki A, Ashikari M, Ueguchi-Tanaka M, Itoh H, Nishimura A, **Datta SK**, Ishiyamas K, Saito T, Kobayashi M, Khush GS, Kitano H, Matsuoka M (2002) Green revolution: A mutant gibberellin-synthesis gene in rice. **Nature** 416:701-702
6. Reddy PM, Ladha JK, Ramos MC, Maillet F, Hernandez RJ, Torrizo LB, Oliva NP and **Datta SK**, and Datta K (1998) Rhizobial lipochitooligosaccharide nodulation factors activate expression of the legume early nodulin gene *ENOD12* in rice. **Plant Journal** 14:693-702.
7. **Datta SK**, Datta K, Soltanifar N, Donn G, and Potrykus I (1992) Herbicide-resistant Indica rice plants from IRRI breeding line IR72 after PEG-mediated transformation of protoplasts. **Plant Mol. Biol.** 20:619-629
8. Datta K, Vasquez A, Tu J, Torrizo L, Alam MF, Oliva N, Abrigo E, Khush GS, and **Datta SK** (1998) Constitutive and tissue-specific differential expression of *cryIA(b)* gene in transgenic rice plants conferring resistance to rice insect pest. **Theor. Appl. Genet.** 97:20-30.
9. Tu J, Datta K, Oliva N, Zhang G, Xu C, Khush GS, Zhang Q, and **Datta SK** (2003) Site-independently integrated transgenes in the elite restorer rice line Minghui 63 allow removal of a selectable marker from the gene of interest by self-segregation. **Plant Biotechnology Journal** 1:155-165.
10. Baisakh, N., S. Rehana, M. Rai, N. Oliva, J. Tan, Mackill D, Khush GS, Datta K, & **Datta SK** (2006). Marker-free transgenic (MFT) near-isogenic introgression lines (NILs) of 'golden' indica rice (cv IR64) with accumulation of provitaminA in the endosperm tissue. **Plant Biotechnol. J** 4:467-475

### Research publications (selected) of Dr Swapan K Datta (1975-2007)

#### (a) Research papers (refereed journals)

1. **Datta SK**, Datta K, Parkhi V, Rai M, Baisakh N, Sahoo G, Rehana S, Bandyopadhyay A, Alamgir M, Ali MS, Abrigo E, Oliva N, Torrizo L (2007) Golden Rice: introgression, breeding, and field evaluation. **Euphytica** 154:271-278
2. Rai M, Datta K, Parkhi V, Tan J, Oliva N, Chawla HS, **Datta SK** (2007) Variable T-DNA linkage configuration affects inheritance of carotenogenic transgenes and carotenoid accumulation in transgenic indica rice **Plant Cell Rep.** 26 :1221-1231
3. Datta Karabi, Rai, M, Parkhi V, Oliva N, Tan J, **Datta SK** (2006) Improved 'golden' indica rice and post-transgeneration enhancement of metabolic target products of carotenoids (beta-carotene) in transgenic elite cultivars (IR64, BR29) **Current Science** 91:935-939
4. Baisakh, N, Rehana S, Rai M, Oliva N, Tan J, Mackill D, Khush GS, Datta K, **Datta SK** (2006). Marker-free transgenic (MFT) near-isogenic introgression lines (NILs) of 'golden' indica rice (cv IR64) with accumulation of provitaminA in the endosperm tissue. **Plant Biotechnol. J** 4:467-475.

5. Ho NH, Baisakh N, Oliva N, Datta K, Frutos R, **Datta SK** (2006) Translational fusion hybrid Bt genes confer resistance against yellow stem borer in transgenic elite Vietnamese rice (*Oryza sativa*) cultivar. **Crop Science** 46:781-789
6. Chen NE, Ye GY, Liu ZC, Yao HW, Chen XX, Shen SZ, Hu C, **Datta SK** (2006) Field assessment of the effects of transgenic rice expressing a fused gene of *cryIAb* and *cryIIAc* from *Bacillus thuringiensis* Berliner on non-target planthopper and leafhopper populations. **Environ Entomol** 35:127-134
7. Datta K and **Datta SK** (2006) Indica rice (*Oryza sativa*, BR29 and IR64) In, **Methods in Molecular Biology**, Vol 343, *Agrobacterium* protocols, ed, Kan Wang, Humana press, New Jersey, USA, Vol 1, pp 201-212
8. Khalekuzzaman M, Datta K, Oliva N, Alam MF, Joarder OJ, **Datta SK** (2006) Stable integration, expression and inheritance of the ferritin gene in transgenic elite indica rice cultivar BR29 with enhanced iron level in the endosperm. **Ind J Biotech** 5:26-31
9. Sivaprakash KR, Krishnan S, **Datta SK**, Parida AK (2006) Tissue-specific histochemical localization of iron and ferritin gene expression in transgenic indica rice Pusa Basmati (*Oryza sativa* L). **Journal of Genetics** 85:157-160
10. Tan J, Baisakh N, Oliva N, Torrizo L, Abrigo E, Datta K, and **Datta SK** (2005) The Screening of Rice Germplasm., including those transgenic rice lines which accumulate beta-carotene in polished seeds for their carotenoids profile. **International Journal of Food Science and Technology** 40:453-459.
11. Parkhi V, Rai M, Tan J, Oliva N, Rehana S, Bandyopadhyay A, Torrizo L, Ghole V, Datta K, **Datta SK** (2005) Molecular Characterization of marker free transgenic lines of indica rice that accumulate carotenoids in seed endosperm. **Molecular Genetics Genomics** 274:325-336
12. Narayanan NN, Baisakh N, Oliva NP, Vera Cruz CM, Gnanamanickam SS, Datta K, and **Datta SK** (2004) Molecular breeding: Marker-assisted selection combined with biolistic transformation for Blast and Bacterial Blight resistance in indica rice (cv. CO39). **Molecular Breeding** 14:61-71
13. Datta K, Baisakh N, Oliva N, Torrizo L, Abrigo E, Tan J, Rai M, Rehana S, Al-Babili S, Beyer P, Potrykus I, and **Datta SK** (2003) Bioengineered 'golden' indica rice cultivars with beta-carotene metabolism in the endosperm with hygromycin and mannose selection systems. **Plant Biotechnology Journal** 1:81-90
14. Vasconcelos M, Datta K, Oliva N, Khalekuzzaman M, Torrizo L, Krishnan S, Oliveira M, Goto F, **Datta SK** (2003) Enhanced iron and zinc accumulation in transgenic rice with the *ferritin* gene. **Plant Science** 64(3): 371-378.
15. Dey M, Complainville A, Charon C, Kondorosi A, Crespi M, **Datta SK** (2004) Phytohormonal responses in *enod40*-overexpressing plants of *Medicago truncatula* and rice. **Physiol. Plant.** 120: 132-139
16. Tu J, Datta K, Oliva N, Zhang G, Xu C, Khush GS, Zhang Q, and **Datta SK** (2003) Site-independently integrated transgenes in the elite restorer rice line Minghui 63 allow removal of a selectable marker from the gene of interest by self-segregation. **Plant Biotechnology Journal** 1:155-165.
17. Datta K, Baisakh N, Thet KM, Tu J, and **Datta SK** (2002) Pyramiding transgenes for multiple resistance in rice against bacterial blight, yellow stem borer and sheath blight. **Theor. Appl. Genet.** 106:1-8.
18. Sasaki A, Ashikari M, Ueguchi-Tanaka M, Itoh H, Nishimura A, **Datta SK**, Ishiyamas K, Saito T, Kobayashi M, Khush GS, Kitano H, Matsuoka M (2002) Green revolution: A mutant gibberellin-synthesis gene in rice. **Nature** 416:701-702.
19. Reddy PM, Ladha JK, Ramos MC, Maillet F, Hernandez RJ, Torrizo LB, Oliva NP and **Datta SK**, and Datta K (1998) Rhizobial lipochitoooligosaccharide nodulation factors activate expression of the

legume early nodulin gene *ENOD12* in rice. **Plant Journal** 14:693-702.

- 20 Tu J, Zhang G, Datta K, Xu C, He Y, Zhang Q, Khush GS, and **Datta SK** (2000) Field performance of transgenic elite commercial hybrid rice expressing *Bacillus thuringiensis*  $\delta$ -endotoxin. **Nature Biotechnology** 18:1101-1104.
- 21 Ye G, Tu J, Hu C, Datta K, and **Datta SK** (2001) Transgenic IR72 with fused Bt gene *cryIAB/cryIAC* from *Bacillus thuringiensis* is resistant against four lepidopteran species under field conditions. **Plant Biotechnology** 18(2):125-133.
- 22 Quimio CA, Torrizo LB, Setter TL, Ellis M, Grover A, Abrigo EM, Oliva NP, Ella ES, Carpena AL, Ito O, Peacock WJ, Dennis E, and **Datta SK** (2000) Enhancement of submergence tolerance in transgenic rice overproducing pyruvate decarboxylase. **J. Plant Physiology** 156: 516-521.
- 23 Datta K, Tu J, Oliva N, Ona I, Velazhahan R, Mew TW, Muthukrishnan S, and **Datta SK** (2001) Enhanced resistance to sheath blight by constitutive expression of infection-related rice chitinase in transgenic elite indica rice cultivars. **Plant Science** 160:405-414
- 24 Datta K, Koukolíková-Nicola Z, Baisakh N, Oliva N, and **Datta SK** (2000) *Agrobacterium*-mediated engineering for sheath blight resistance of indica rice cultivars from different ecosystems. **Theor. Appl. Genet.** 100:832-839.
- 25 Tu J, Datta K, Khush GS, Zhang Q, and **Datta SK** (2000) Field performance of *Xa21* transgenic indica rice (*Oryza sativa* L.), IR72. **Theor. Appl. Genet.** 101:15-20.
- 26 Alam MF, Datta K, Vasquez A, Tu J, Virmani SS, and **Datta SK** (1999) Transgenic insect resistant maintainer line (IR68899B) for improvement of hybrid rice. **Plant Cell Reports** 18:572-575.
- 27 Datta K, Velazhahan R, Oliva N, Mew T, Khush GS, Muthukrishnan S, and **Datta SK** (1999) Over expression of the cloned rice thaumatin-like protein (PR-5) gene in transgenic rice plants enhances environmental friendly resistance to *Rhizoctonia solani* causing sheath blight disease **Theor. Appl. Genet.** 98:1138-1145.
- 28 Chareonpornwattana S, Krishnarajapuram VT, Wang L, **Datta SK**, Panbangred W, and Muthukrishnan S (1999) Inheritance, expression, and silencing of a chitinase transgene in rice. **Theor. Appl. Genet** 98:371-378.
- 29 Datta K, Vasquez A, Tu J, Torrizo L, Alam MF, Oliva N, Abrigo E, Khush GS, and **Datta SK** (1998) Constitutive and tissue-specific differential expression of *cryIA(b)* gene in transgenic rice plants conferring resistance to rice insect pest. **Theor. Appl. Genet.** 97:20-30.
- 30 Tu J, Ona I, Zhang Q, Mew TW, Khush GS, and **Datta SK** (1998) Transgenic rice variety IR72 with *Xa21* is resistant to bacterial blight. **Theor. Appl. Genet.** 97:31-36.
- 31 Tu J, Datta K, Alam MF, Khush GS, and **Datta SK** (1998) Expression and function of a hybrid Bt toxin gene in transgenic rice conferring resistance to insect pests. **Plant Biotechnology** (Japan) 15:183- 191.
- 32 Alam MF, Datta K, Abrigo E, Vasquez A, Senadhira D, and **Datta SK** (1998) Production of transgenic deepwater indica rice plants expressing a synthetic *Bacillus thuringiensis cryIA(b)* gene with enhanced resistance to yellow stem borer. **Plant Science** 135:25-30.
- 33 Ling DH, LZ Tao, ZR Ma, Zhang SP, and **Datta SK** (1998) Engineered male sterile transgenic plants of rice (*Oryza sativa* L.) with *psl-barnase* gene transformation by particle bombardment. **Acta Genetica Sinica** 25(5) 433-442.

- 34 Ashikari M, Sasaki A, Tanaka MU, Itoh H, Nishimura A, **Datta SK**, Ishiyama K, Saito T, Kobayashi, M, Khush GS, Kitano H, Matsuoka M (2002) Loss-of-function of a Rice Gibberellin Biosynthetic Gene, *GA20 oxidase (GA20-ox-2)*, Led to the Rice 'Green Revolution'. **Breeding Science** 52: 143-150.
- 35 Wu C, Fan Y, Zhang C, Oliva N, and **Datta SK** (1997) Transgenic fertile japonica rice plants expressing modified *cryIA(b)* gene resistant to yellow stem borer. **Plant Cell Reports** 17:129-132.
- 36 Lin W, Anuratha CS, Datta K, Potrykus I, Muthukrishnan S, and **Datta SK** (1995) Genetic-engineering of rice for resistance to sheath blight. **Bio/Technology** 13:686-691.
- 37 Castiglione PS, Giordani C, Li W, Wang G, **Datta SK**, Datta K, Potrykus I, and Sala F (1993) State of the foreign gene and of the genome in transgenic rice (*Oryza sativa*). **Cytotechnology** 11:123-125.
- 38 Alam MF, Oliva NP, Zapata FJ, and **Datta SK** (1995) Fertile transgenic Indica rice plants by PEG-mediated protoplasts transformation. **J. of Genetics and Breeding** 49:303-308.
- 39 Alam MF, Zapata FJ, Barrion AA, and **Datta SK** (1994) Plant regeneration from protoplasts of three indica rice (*Oryza sativa* L.) cultivars. **J. Genet. & Breeding** 48:359-366.
- 40 Ghosh-Biswas GC, Iglesia VA, **Datta SK**, and Potrykus I (1993) Transgenic Indica-rice (*Oryza sativa*) plants obtained by direct gene transfer to protoplasts. **J. Biotechnology** 32:1-10.
- 41 Kloti A, Iglesia VA, Wunn J, Burkhardt PK, **Datta SK**, and Potrykus I (1993) Gene transfer by electroporation into intact scutellum cells of wheat embryos. **Plant Cell Reports** 12:671-675.
- 42 **Datta SK**, Datta K, Soltanifar N, Donn G, and Potrykus I (1992) Herbicide-resistant Indica rice plants from IRRI breeding line IR72 after PEG-mediated transformation of protoplasts. **Plant Mol. Biol.** 20:619-629.
- 43 Datta K, Potrykus I, and **Datta SK** (1992) Efficient fertile plant regeneration from protoplasts of the Indica rice breeding line IR72 (*Oryza sativa*). **Plant Cell Reports** 11:229-233.
- 44 **Datta SK**, Datta K, and Potrykus I (1990) Fertile Indica rice plants regenerated from protoplasts isolated from microspore derived cell suspensions. **Plant Cell Reports** 9:253-256.
- 45 **Datta SK**, Peterhans A, Datta K, and Potrykus I (1990) Genetically engineered fertile Indica-rice plants recovered from protoplasts. **Bio/Technology** 8:736-740.
- 46 **Datta SK**, Datta K, and Potrykus I (1990) Embryogenesis and plant regeneration from microspores of both Indica and Japonica rice (*Oryza sativa*). **Plant Science** 67:83-88.
- 47 Peterhans A, **Datta SK**, Datta K, Godall GH, Potrykus I, and Paszkowski J (1990) Recognition of efficiency of Dicotylendoneae-specific promoter and RNA processing signals in rice. **Mol. Gen. Genet.** 221:362-368.
- 48 **Datta SK** (1987) Plant regeneration by pollen embryogenesis from cultured whole spikes of barley (*Hordeum vulgare*). **Theor. Appl. Genet.** 74:121-121
- 49 **Datta SK** and Wenzel G (1987) Isolated microspore derived plant formation via embryogenesis in *Triticum aestivum*. **Plant Science** 48:49-54
- 50 **Datta SK** and Potrykus I (1989) Artificial seed in barley: encapsulation of microspore derived embryos. **Theor Appl. Genet.** 77:820-824.
- 51 **Datta SK** and Wenzel G (1988) Single microspore derived embryogenesis and plant formation in barley *Hordeum vulgare*). **Arch Zeuchtungforsch** 18:125-131.

- 52 **Datta SK** and Kumar A (1987) Histochemical studies in the transition from sapwood to heartwood in *Tectona grandis* **IAWA bulletin** 8:363-
- 53 Kumar A, and **Datta SK** (1989) Histochemical and histoenzymological changes during heartwood formation in a timber tree *Shorea robusta*. **Proc. Indian Acad. Sci. (Plant Sci.)**, 99: pp. 21-27.
- 54 **Datta SK** and De S (1986) Laticifer differentiation in *Calotropis gigantea*. **Annals of Botany** 57:403-406.
- 55 Pramanik TK and **Datta SK** (1986) Plant regeneration and ploidy variation in culture derived plants of *Asclepias curassavica*. **Plant Cell Reports** 3:219-222.
- 56 **Datta SK** and De S (1986) Organ specific chemodifferentiation of cardenolides in *Calotropis gigantea*. **Beitr. Biol. Pflanz.** 61:315-319.
- 57 Datta K and **Datta SK** (1984) Rapid clonal multiplication of *Angelonia salicariifolia*. **Plant Cell Tissue Organ Culture** 3:215-220.
- 58 Baisakh N, Datta K, Oliva N, Ona I, Rao GJN, Mew TW, and **Datta SK** (2001) Rapid development of homozygous transgenic rice using anther culture harboring rice chitinase gene for enhanced sheath blight resistance. **Plant Biotechnology**. 18(2):101-108
- 59 Krishnan S, Datta K, Baisakh N, de Vasconcelos M, **Datta SK** (2003) Tissue-specific localization of  $\beta$ -carotene and iron in transgenic indica rice (*Oryza sativa* L). **Current Science** 84:101-104.
- 60 Narayanan NN, Baisakh N, Vera Cruz CM, Gnanamanickam SS, Datta K, and **Datta SK** (2002) Molecular breeding for the development of blast and bacterial blight resistance in rice cv. IR50. **Crop Science** 42:2072-2079.
- 61 Baisakh N, Datta K, Rai M, Rehana S, Beyer P, Potrykus I, **Datta SK** (2001). Development of dihaploid transgenic “golden rice” homozygous for genes involved in the metabolic pathway for  $\beta$ -carotene biosynthesis. **Rice Genetics Newslett.** 18:91-94.
- 62 Baisakh N, Datta K, Rashid H, Oliva NP, and **Datta SK** (2000) *Agrobacterium tumefaciens*-mediated transformation of an elite indica rice maintainer line IR68899B with a reconstructed T-DNA carrying multiple genes. **Rice Genetics Newsletter** 17:122-125.
- 63 Baisakh N, Datta K, Oliva NP, and **Datta SK** (1999) Comparative molecular and phenotypic characterization of transgenic rice with *chitinase* gene developed through biolistic and *Agrobacterium*-mediated transformation. **Rice Genetics Newsletter** 16:149-152.
- 64 Datta K, Vasquez A, Khush GS, and **Datta SK** (1999) Development of transgenic New Plant Type rice for stem borer resistance. **Rice Genetics Newsletter** 16:143-144.
- 65 Dey M, **Datta SK**, Torrizo LB, Reddy PM, Ladha JK, Day B, and Stacey G (1999) Integration into rice of a soybean apyrase gene proposed to play a central role in nodulation. **Rice Genetics Newsletter** 16:145-147.
- 66 Dey M, Torrizo LB, Chaudhuri RK, Reddy PM, Ladha JK, Datta K, and **Datta SK** (1999) Transgenic rice harboring legume *ENOD40* gene. **Rice Genetics Newsletter** 16:147-149.
- 67 Datta K, Oliva N, Torrizo L, Abrigo E, Khush GS, and **Datta SK** (1996) Genetic transformation of Indica and Japonica Rice by *Agrobacterium tumefaciens*. **Rice Genetics Newsletter** 13:136-139.
- 68 **Datta SK** and Purkayastha RP (1978) Spore germination behaviour of *Acrocyliindrium oryzae* causing sheath rot disease of rice. **Indian Phytopatho.** 31:89-91.

- 69 De S and **Datta SK** (1988) Separation and HPLC identification of two cardiac glycosides from *Calotropis gigantea*. **Indian Drugs** 25:167:168.
- 70 Kumar A and **Datta SK** (1989) Plantlet Regeneration from Hypocotyl Tissue of *Strychnos Nuxvomica* Linn. **Current Science** 58: 812-813
- 71 **Datta SK** and Datta K (1984) Chemodifferentiation of diosgenin in *Dioscorea composita*. **Phytochemistry** 23:2684-2685.
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