

BIODATA : DR. D. G. NAIK

Name : Dr. Dattatraya Gopal Naik

Date of Birth : 30-03-1956

Affiliation: Project Coordinator, Maharashtra Education Society, C/o Biodiversity Department,
Abasaheb Garware College, Pune 411004.

Address for correspondence: A-6/5, Sarita nagari (Phase-I),
Ganeshmala,
Pune -411 030.

Email : dgnpune @yahoo.co.in

Contact Numbers : (R) : 020-24253265; (M): 8237861652

Academic Qualifications :

Degree	Year	Subject(s)	Specialization	Class obtained
Ph. D.	1983	Organic Chemistry	Chemistry of Natural Products	--
M. Sc.	1977	Organic Chemistry	Organic Chemistry	First Class
B. Sc.	1975	Chemistry, Physics, Zoology	Chemistry (Principal)	First Class Honours with Distinction

Positions Held :

Orgnization	Designation	Period
Union Carbide (India) Ltd, R & D Center, Bhopal	Research Officer	1982-1986
Union Carbide Agricultural Products Division, Research Triangle Park (NC), U.S.A	Visiting Scientist	1983-1984
M.A.C.S. Research Institute, (Now renamed as ARI)	Scientist B	1986-1991
Agharkar Research Institute, Pune, India.	Scientist C	1991-1997
Agharkar Research Institute, Pune, India.	Scientist D	1997-2002
Agharkar Research Institute, Pune, India.	Scientist E	2002 -2008
Agharkar Research Institute, Pune, India.	Scientist F	2008 - 2014
Agharkar Research Institute, Pune, India	Co-ordinator Bioprospecting Group	2014- March 2016.

Honours and Awards:

Recognized as a research guide (for Ph. D.) by Pune University since 1998.

Elected as the 'Fellow' of the Maharashtra Academy of Sciences in November 2001. Elected as the 'Life Member' of 'All India Beekeepers' Association 'in 2002.

Nominated on the Editorial Board of Indian Bee Journal in 2005.

Member of Indian Pharmacopoeia commission (IPC) and USP joint Ad hoc Advisory Panel on Dietary Supplements Expert Committee by US Pharmacopoeia since 2005.

Member, Ethical committee – A. J. Medical Care, Pune since 2010.

Member, Governing body- Indian Drug Research Association, Pune since 2014.

Principle Investigator, WoS-B Project of Department of Science and Technology, Govt. of India for a period of three years.

Editor-in Chief, Journal of Essential Oil Bearing Plants, Published by Taylor and Francis from 2014.

Research experience:

- Worked in the field of steroids, natural product chemistry, synthetic organic chemistry, development of new insecticides and non-toxic insect controlling agents.
- Isolation, identification and synthesis of important honeybee pheromones was carried out. Nasonov gland pheromone of Indian honey bee *Apis cerana indica* was identified and a lure to attract these honey bees was evolved. On the similar lines the mandibular gland pheromone was also studied and the repellent formulations for these honey bees were also developed.
- Important pheromones like: Brevicommin, 9-Oxo-2-decenoic acid, popularly known as 'Queen's substance' and optically inactive as well as optically active isomers of Sitophilate have been synthesised. Use of standard as well as novel methods in organic synthesis has been made in these synthetic sequences. Optimization of cross-Kolbe electrolysis, development of a method for one pot esterification of carboxylic acids and a protecting group for them was also done in the course of this work.
- Precocene-I and its novel analogues were synthesised. Their activity as 'Anti-Juvenile Hormone' was proved. The compounds were tested for their mammalian toxicity and were found to be acceptable.
- Quality standards of 53 Indian medicinal plants were developed. The respective monographs are published by ICMR.
- Phytochemical reference standards of 51 Indian medicinal plants were isolated and characterized. Monographs prepared are published by ICMR.
- Various research projects were financially supported by the Government funding agencies like Indian Council of Medical Research, Ministry of Agriculture, Department of Science and Technology, Department of Biotechnology and some industrial houses like Mehta Pharmaceuticals, Amritsar and A. J. Organica (Pvt.) Ltd Pune.

Guidance to Students:

One student was awarded M. E. degree by Tatyasaheb Kore Institute of Engineering and Technology, Warananagar, Kolhapur.

Five students were awarded Ph. D. degree by Pune University.

Invitation: Invited by London Metropolitan University, London, U. K. for a study visit for one month during July 2005 to August 2005.

Publications: Total number of Publications : 162 which includes Research Papers: 52, Patents: 3 and Monographs: 107

Plenary / Invited lectures: 50 in the national and international conferences in India and abroad.

Radio Talks : About 100 popular articles in Marathi are written and the scripts of about 150 programmes broadcast by All India Radio, Pune are prepared.

Participation in teaching:

- Guiding students for Ph. D. degree (Organic Chemistry) of Pune University. Six students were awarded Ph. D. by Savitribai Phule Pune University.
- Invited as a member of Board of Studies by Solapur University, Solapur
- Invited as a contributory teacher for M.Sc. (Analytical Chemistry) by University of Pune. Analysis of Petrochemicals, Insecticides and Pesticides were the courses taught for the last twenty years.
- Invited as a Resource Person in the Refresher Course for Post Graduate Teachers at Delhi University, University of Pune and at Yashawant Mahavidyalaya, Nanded. The courses handled were Stereochemistry, Spectroscopy and Natural Product Chemistry.
- Invited as a Guest Lecturer for M.Sc. (Organic Chemistry) students- Yeshwant Mahavidyalaya, Nanded. The courses taught were Spectroscopy and Natural Product Chemistry.
- Invited as a guest teacher to teach 'Natural Product Chemistry' and 'Spectroscopy' for M. Pharm. students by many pharmacy colleges in Pune.
- Appointed as a Referee by Indian and Foreign Journals.
- Appointed as a Referee to evaluate Ph.D. Thesis by many Indian Universities.
- Participated in the programmes of All India Radio as an expert in Science. Also delivered talks on scientific matters and wrote scripts for more than 100 programmes.

List of Research Papers Published:

1. Narayanan, CR and Naik, DG (1979) Shielding effect on adjacent proton on methylation of primary amines. *Indian J. Chem.*, 18B, 533-534.
2. Narayanan, CR. and Naik, DG (1980) Simple methods to identify proton(s) on a carbon holding an amino group. *Indian J. Chem.*, 19B, 210-211.
3. Narayanan, CR and Naik, DG (1981) A new triterpene and steroid from Indian Kurchi Bark. *Indian J. Chem.*, 20B, 62-63.
4. Dandge, CN, Naik, DG and Kapadi, AH (1987) Synthesis of methyl 7-oxo-octanoate, an intermediate synthon for queen's substance. *Biovigyanam*. 13(2), 121-122.
5. Naik, DG, Gadre, RV, Kapadi, AH, Singh, MK, Suryanarayana, MC and Kshirsagar, KK (1988) Nosonov gland pheromone of Indian honeybees *Apis cerana indica* F. *J. Apic. Res.*, 27(4), 205-206.
6. Dandge, CN, Naik, DG and Kapadi, AH (1988) Optimization of product(s) yield in cross-Kolbe electrolysis. *Indian J. Chem.*, 27B, 854-855.
7. Naik, DG, Kapadi, AH, Singh, MK, Suryanarayana, MC and Kshirsagar, KK (1989) Lure development for Indian hive bees. *Indian Bee Journal*, 51(2), 47-50.
8. Dandge, CN, Naik, DG and Kapadi, AH (1990) Synthesis of (E)-9-oxo-2-decenoic acid, honeybee queen's substance. *Biovigyanam*, 16(1), 66-68.
9. Gawade, MB, Naik, DG and Kapadi, AH (1990) Anti-juvenile hormone effect of precocene I on red cotton bug *Dysdercus koenigii*. *Proc. Symp. Botanical Pesticides in IPM*, Rajahmundry, 318-320.
10. Puntambekar, HM, Naik, DG and Kapadi, AH (1991) Synthesis of alkyl 1,3-dioxolane-2-methyl-2-propionates. *Biovigyanam*, 17(2), 121-123.
11. Dandge, CN, Naik, DG and Kapadi, AH (1992) Two convenient syntheses of brevicomin. *Indian J. Chem.*, 31B, 617-619.
12. Puntambekar, HM, Naik, DG and Kapadi, AH (1993) Mild, one pot conversion of carboxylic acids into esters using phase transfer catalysis. *Indian J. Chem.*, 32 B 793 - 794.
13. Puntambekar, HM., Naik, DG and Kapadi, AH (1993) β -Hydroxyethyl ester as a protecting group for carboxylic acids. *Indian J. Chem.*, 32 B, 684 -687.

14. Arnikar, HJ, Naik, DG Kapadi AH and Chandwadkar JG (1994) Radiation Induced Isomerisation of Thiourea into Ammonium Thiocyanate. *J. Radioanalytical and Nuclear Chemistry, Articles* 185, 227-230.
15. Naik, DG, Bhongle, AS., Kapadi, AH, Suryanarayana MC, Chawda, SS and Chaudhary, OP (1995) Antennal sensilla of adult worker *Apis cerana indica*. *J. Apic. Res.* 34(4), 205-208.
16. Naik, DG., Wakhale, DM and Pais DVE (1996) Citral in volatile components of Jamun honey. *Indian Bee Journal* 58 (2), 66-67.
17. Mujumdar AM., Wagh, S, Naik, DG, Natu, AD and Banhatti, P (1997) Central Nervous System Depressant Activity of *Fagara budrunga* Fruit. *Indian Drugs* 34(6), 332- 335.
18. Naik, D.G., Katke, S, Chawda, SS and Thomas, D. (1997) 2-Heptanone as a repellent for *Apis cerana* *J. Apic. Res.*, 36 (3/4), 151 - 154.
19. Naik DG, Katke S, Chawda SS and Thomas D (1997) Repellency of 2-heptanone to *Apis cerana*. *Indian Bee Journal*, 59 (2), 80 - 81.
20. Puntambekar, HM and Naik, DG (1998) *Geotrichum candidum* assisted synthesis of Sitophilate, male aggregation pheromone of Granary weevil. *Synthetic Communications*, 28 (13), 2399 - 2406.
21. Naik, DG, Katke, S, Banhatti, P and Natu, AD (1999) (Z) 1'-Propylbutyl 3-octadecenoate from *Fagara budrunga* fruits. *Indian J. Chem.*, 38 B, 122-124.
22. Mujumdar, AM, Naik, DG, Waghole, RJ, Kulkarni, DK and Kumbhojkar, MS (2000) Pharmacological studies on *Sterculia foetida* leaves. *Pharmaceutical Biology*, 38, 13-17.
23. Naik, DG, Banhatti, P, Chawda, SS and Thomas, D. (1999) Chemical constituents of Nasonov gland pheromone of *Apis mellifera* in India. *Indian Bee J.*, 61(1-4), 59-62 (Published in 2001).
24. Naik, DG, Banhatti, P, Chawda, SS and Thomas, D (1999) Ethylthio cyclopentane as a repellent for *Apis cerana*. *Indian Bee J.*, 61(1-4), 43-48 (Published in 2001).
25. Mujumdar, AM, Naik, DG, Dandge, CN and Puntambekar, HM (2000) Anti-inflammatory activity of *Curcuma amada* Roxb. in Albino rats., *Indian J. Pharmacology*, 32, 375 – 377.
26. Naik, DG, Banhatti, P, Chawda, SS and Thomas, D (2002) 2-Heptanone as a repellent for *Apis florea*. *J. Apic. Res.*, 40 (1-2), 59-61.

27. Naik, DG, Banhatti, P, Chawda, SS and Thomas, D (2003) *Fagara budrunga* fruit extract as an attractant for *Apis cerana*. *J. Apic. Res.*, 42 (1-2), 48-49.
28. Naik, DG, Banhatti, P, Chawda, SS and Thomas, D (2001) Occurrence of Neral in Nasonov Gland Pheromone of *Apis mellifera* Linn. *Indian Bee J.*, 63 (1&2), 1-5 (Published in 2003).
29. Naik, DG, Mujumdar, AM, Waghole, RJ, Misar, AV, Bligh, SWA, Bashall, A, Crowder J. (2004) Taraxer-14-en-3^o-ol, an Anti-inflammatory Compound from *Sterculia foetida* L. *Planta Medica*, 70 (1), 68-69.
30. Mujumdar, AM, Naik, DG, Misar, AV, Puntambekar, HM and Dandge, CN (2004) CNS Depressant and Analgesic Activity of a Fraction Isolated from an Ethanol Extract of *Curcuma amada* Rhizomes, *Pharmaceutical Biology*, 42 (7), 542-546.
31. Naik DG, Dandge CN, Puntambekar HM and Patil T. (2005) Attractant and repellent properties of *Swertia densifolia* leaf extract towards *Apis cerana indica*. *J. Apicultural Research*, 44 (3), 116 -118.
32. Naik, DG, Babrekar, AA and Nath, BB (2006) Pheromone-like compounds in the cuticle of aquatic *Chironomus* larva, *Chemistry and Ecology*. 22 (6), 501–508.
33. Naik, DG, Dandge, CN and Puntambekar, HM. (2007) *Swertia densifolia* leaf extract as a dose-dependant attractant or repellent for *Apis florea*. *Journal of Apicultural Research* 46 (1): 15–18.
34. Naik, DG, Dandge, CN, Puntambekar, HM and Deshpande, PD. (2008) Chemical examination of *Swertia densifolia* leaf essential oil and its repellent activity towards *Apis cerana indica* F. *Journal of Apicultural Research and Bee World* 47(1): 63–67.
35. Nath, S, Viraktamath, S, Vastrad, AS and Naik, DG (2008) Influence of indigenous bee attractants on bee visitation and yield parameters of Sunflower; *Indian Bee Journal* (Accepted)
36. Love A, Naik, DG, Basak, SK, Babu, S, Pathak, N and Babu, CR (2009) Variability in foliar essential oils among different morphotypes of *Lantana* species complexes and its taxonomic and ecological significance. *Chemistry and Biodiversity*, 6 (12): 2263-2274.
37. Naik, DG, Vaidya, HS and Behera, BC (2009) Antioxidant properties of Indian propolis. Accepted by *Journal of ApiProduct and ApiMedical Science*, 1(4):110-120.

38. Naik, DG, Dandge, CN and Deshpande, PD. (2010) Pheromone-like' properties of de-oiled leaf extract of *Swertia densifolia* towards *Apis cerana indica*, Journal of Apicultural Research, 49(2): 149-153. (Impact Factor – 1.659)
39. Naik, DG, Puntambekar, HM and Anantpure, P. (2010) Essential oil of *Terminalia chebula* fruits as a repellent for the Indian honeybee *Apis florea*. Chemistry and Biodiversity, 7, 1303-1310. (Impact Factor – 0.746)
40. Nitnaware, KM, Naik, DG and Nikam, TD. (2010). Thidiazuron-induced shoot organogenesis and production of hepatoprotective lignan phyllanthin and hypophyllanthin in *Phyllanthus amarus*, Plant Cell Tiss. Organ Cult. Published online, DOI 10.1007/s11240-010-9796-3
41. Bhadra, A, Mitra, A, Deshpande, SA, Chandrasekhar K, Naik DG, Hefetz A and Gadagkar R (2010). Regulation of Reproduction in the Primitively Eusocial Wasp *Ropalidia marginata*: on the Trail of the Queen Pheromone. J. Chem. Ecol. 36:424–431.
42. Mahadik, ND, Morey, MV, Behera, BC, Makhija, UV, Naik, DG. (2010) Cardiovascular-protective, antioxidative and antimicrobial properties of natural Lichen *Usnea complanata*. Accepted by the Latin American Journal of Pharmacy.
43. Srivastava, P, Wagh, RS and Naik, DG. γ -Irradiation: A Simple Route for Isomerization of Geraniol into Nerol and Linalool. Radiochemistry, 2010, Vol. 52, No. 5, pp. 561–564.
44. Banerjee, K, Dasgupta, S, Jadhav, MR, Naik, DG, Oulkar, DP, Savant, RH, Adsule, PG. (2010) A fast, inexpensive and safe method for the residue analysis of meptyldinocap in different fruits by liquid chromatography/ tandem mass spectrometry. Journal of AOAC International, 93 (6), 1957-1964
45. Mahadik, ND, Morey, MV, Behera, BC, Makhija, UV and Naik DG. (2011) Cardiovascular-protective, Antioxidative, and Antimicrobial Properties of Natural Thallus of Lichen *Usnea complanata*. Latin American Journal of Pharmacy, 30(2):220-8.
46. Naik, DG, Dandge, CN, Rupanar, SV. (2011) Chemical Examination and Evaluation of Antioxidant and Antimicrobial Activities of Essential Oil from *Gymnema sylvestre* R. Br. Leaves. Journal of Essential Oil Research, Vol.23, 12-19.
47. Naik, DG and Vaidya, H. (2011) Antioxidant properties of volatile oil of Indian propolis. Journal of ApiProduct and ApiMedical Science 3(2):89-93.

48. Naik, DG, Mujumdar, AM and Vaidya, HS. (2013) Anti-inflammatory Activity of Propolis from Maharashtra, India. *Journal of Apicultural Research*, 52(2) 35-43.
49. Naik DG, Vaidya HS and Namjoshi TP. (2013) Essential Oil of Indian Propolis: Chemical Composition and Repellency against the Honeybee *Apis florea*. *Chemistry and Biodiversity*, 10: 649-657.
50. Salunkhe VP, Sawant, IS, Banerjee K, Rajguru YR, Wadkar PN, Oulkar DP, Naik DG, and Sawant SD. (2013) Biodegradation of Profenofos by *Bacillus subtilis* Isolated from Grapevines (*Vitis vinifera*). *J. Agric. Food Chem.*, 61, 7195–7202.
51. Naik DG, Vaidya-Kannur H, Deshpande PV, Dandge CN and Reddy GVP (2015) Potential use of an essential oil from the flower of *Swertia densifolia* as a repellent for *Apis florea* (Hymenoptera: Apidae). *Ann. Ent. Soc. Amer.* 107 : 18 – 25.
52. Chakrabarti P, Rana S, Bandopadhyay S, Naik DG, Sarkar S and Basu P (2015) Field population of native Indian honey bees from pesticides intensive agricultural; landscape show signs of impaired olfaction. *Scientific Reports* 5: 12504 (Published online) in July 2015.

PATENTS GRANTED

Naik, D. G., Kapadi A. H. and Kshirsagar, K. K.

Developing a honey bee attractant useful to attract Indian honey bees *Apis florea*
Indian Patent No. 185391.

Naik, D. G. and Kapadi, A. H.

Anti-juvenile hormones for the control of red cotton bug *Dysdercus koenigii*.
Indian Patent No. 188313.

Naik, D. G., Banhatti, P. R., Chawda S. S. and Thomas
Daisy. Repellents for honeybees.

Indian Patent No.:196551 Application No. 733/BOM/1999 Accepted on 08/11/2004
sealed on 31/10/2005.

List of Monographs Published :

1. Mujumdar AM., Naik DG., Vaidya HS, Chaturvedi S. Following five monographs are published in Quality Standards of Indian Medicinal Plants Vol. 5 by Indian Council of Medical Research, Govt. of India, New Delhi, February 2008.

Sr. No.	Plant Name	Plant Part	Pg. Nos.
1	<i>Alternanthera sessilis</i> (L.) R. Br. Ex DC	Whole plant	43-53
2	<i>Avicennia officinalis</i> Linn.	Kernels	91-97
3	<i>Colebrookea oppositifolia</i> Sm.	Leaves	168-175
4	<i>Cryptolepis buchananii</i> Roem. & Schult	Root	176-183
5	<i>Cuscuta reflexa</i> Roxb.	Whole plant	184-192

2. Mujumdar AM., Naik DG., Vaidya HS, Chaturvedi S. Following nine monographs are published in Quality Standards of Indian Medicinal Plants Vol. 6 by Indian Council of Medical Research, Govt. of India, New Delhi, July 2008.

Sr. No.	Plant Name	Plant Part	Pg. Nos.
1	<i>Acanthus ilicifolius</i> Linn	Leaf	11-18
2	<i>Ailanthus triphysa</i> (Dennst.)	Stem bark	19-27
3	<i>Anisomeles malabarica</i> (Linn.)	Arial part	28-36
4	<i>Aphanamixis polystachya</i> (Wall.)	Stem bark	37-45
5	<i>Bixa orellana</i> Linn.	Seed	46-54
6	<i>Cardiospermum halicacabum</i>	Whole plant	64-75
7	<i>Datura metel</i> Linn.	Leaf & Seed	110-123
8	<i>Jasminum auriculatum</i> Vahl	Leaf & Flower	176-188
9	<i>Rhizophora mucronata</i> Lamk.	Stem bark	224-231

3. Mujumdar AM., Naik DG., Vaidya HS, Namjoshi TP. Following three monographs are published in Quality standards of Indian Medicinal Plants Vol. 7 by Indian Council of Medical Research, Govt. of India, New Delhi, December 2008.

Sr No.	Plant Name	Plant Part	Pg. Nos.
1	<i>Barringtonia acutangula</i> Gaertn	Fruits	29 -36
2	<i>Crinum asiaticum</i> Linn	Roots and Aerial Pseudostems	67-77
3	<i>Mallotus phillippinensis</i> (Lamk.) Muell.-Arg	Seeds	171-180

4. Mujumdar AM., Naik DG., Vaidya HS, Namjoshi TP. Following five monographs are published in Quality Standards of Indian Medicinal Plants Vol. 8 by Indian Council of Medical Research, Govt. of India, New Delhi, January 2010.

Sr. No.	Plant Name	Plant Part	Pg. Nos.
1	<i>Aglaia elaeagnoidea</i> (A. Juss) Benth	Fruit	27-35
2	<i>Ammannia baccifera</i> Linn.	Leaf	36-45
3	<i>Amomum subulatum</i> Roxb.	Seed	46-54
4	<i>Exacum tetragonum</i> Roxb.	Whole Plant	176-183
5	<i>Sterculia urens</i> Roxb.	Gum	296-301

5. Naik DG, Puntambekar HM, Upadhye AS, Dixit MH, Deshpande AS, Ranade PP. Following 11 monographs are published in Quality Standards of Indian Medicinal Plants Vol. 10 by Indian Council of Medical Research, Govt. of India, New Delhi, January 2012.

Sr. No.	Plant Name	Plant Part	Pg. Nos.
1	<i>Capparis spinosa</i> Linn. var. <i>spinosa</i>	Fruit	68-79
2	<i>Carthamus tinctorius</i> Linn.	Flower	80-90
3	<i>Crateva magna</i> (Lour.) DC.	Stem bark	116-125
4	<i>Curculigo orchioides</i> Gaertn.	Rhizome	126-137
5	<i>Euphorbia hirta</i> Linn.	Whole plant	180-194
6	<i>Moringa oleifera</i> Lam.	Leaves	230-240
7	<i>Ocimum tenuiflorum</i> Linn.	Seed	251-260
8	<i>Oroxylum indicum</i> (Linn.) Vent.	Root	261-269
9	<i>Piper cubeba</i> Linn. f.	Fruit	282-292
10	<i>Ricinus communis</i> Linn.	Leaves, Root and seed	303-325
11	<i>Strychnos nux-vomica</i> Linn.	Seed	352-362

6. Naik DG, Puntambekar HM, Upadhye AS, Dixit MH, Deshpande AS, Ranade PP. Following 6 monographs are published in Quality Standards of Indian Medicinal Plants Vol. 11 by Indian Council of Medical Research, Govt. of India, New Delhi, January 2013

S. No.	Plant Name	Plant Part	Pg. Nos.
1	<i>Acacia pennata</i> (Linn.) Willd	Leaf	1-11
2	<i>Carthamus tinctorius</i> Linn.	Leaf	116-124
3	<i>Citrullus colocynthis</i> (Linn.)	Leaf	142-150

4	<i>Euphorbia neriifolia</i> Linn.	Stem	202-211
5	<i>Gmelina arborea</i> Roxb.	Root	225-233
6	<i>Vitex negundo</i> Linn.	Fruit	342-355

7. Dattatraya Naik, Anuradha Upadhye, Hemalata Puntambekar, Anup Deshpande, Mansi Dixit and Priyanka Ranade ; Following eight monographs are published in Quality Standards of Indian Medicinal Plants Vol. 12 by Indian Council of Medical Research, Govt. of India, New Delhi, February 2014.

Sr. No.	Plant Name	Plant Part	Pg Nos.
1	<i>Acacia farnesiana</i> (Linn.) Willd	Stem bark	12 - 19
2	<i>Argemone Mexicana</i> Linn	Whole plant	135 -162
3	<i>Getonia floribunda</i> Roxb.	Root	257 - 264
4	<i>Glycine max</i> (Linn.) Merr.	Seed	265 - 275
5	<i>Manihot esculenta</i> Crantz	Root	314 -323
6	<i>Raphanus satives</i> Linn.	Aerial part	338 - 350
7	<i>Sphaeranthus indicus</i> Linn	Fruit	363 -370
8	<i>Tectona grandis</i> Linn. f..	Heart wood	371 -382

8. Naik DG, Upadhye AS, Vaidya HS, Rajopadhye AA, Shelke SM and Namjoshi TP. Following 30 monographs are published in Phytochemical Reference Standards of Selected Indian Medicinal Plants, Vol. 1 by Indian Council of Medical Research, Govt. of India, New Delhi, January 2010.

Sr. No.	Marker compound	Plant name	Plant Part	Pg. Nos.
1	Alizarin	<i>Rubia cordifolia</i> L.	Root	1-9
2	Aloin	<i>Aloe ferox</i> Mill.	Leaf	10-18
3	Bergapten	<i>Ficus religiosa</i> L.	Stem bark	19-31
4	Betulin	<i>Symplocos racemosa</i>	Stem bark	32-47
5	Carvone	<i>Nigella sativa</i> L.	Seed	48-58
6	Cedrol	<i>Cedrus deodara</i> Roxb.	Heartwood	59-74
7	Colchicine	<i>Iphigenia indica</i> L.	Corm	75-83
8	Curcumin	<i>Curcuma aromatic</i>	Rhizome	84-92
9	Diosgenin	<i>Dioscorea bulbifera</i> L.	Bulb/Tuber	93-104
10	Ellagic acid	<i>Terminalia bellirica</i>	Fruit	105-118
11	Emodin	<i>Cassia occidentalis</i> L.	Arial part	119-128
12	Eugenol	<i>Anethum sowa</i> Roxb.	Fruit	129-142
13	Gardenin A	<i>Gardenia gummifera</i> L.	Gum	143-151
14	Gentianine	<i>Enicostema axillare</i>	Whole plant	152-160
15	Imperatorin	<i>Aegle marmelos</i> L.	Fruit	161-171
16	Jasmone	<i>Jasminum auriculatum</i>	Leaf	172-183

17	Karanjin	<i>Pongamia pinnata</i> L.	Leaf	184-191
18	Nimbin	<i>Azadirachta indica</i> L.	Stem bark	192-201
19	Palasonin	<i>Butea monosperma</i>	Seed	202-210
20	Proscillaridin	<i>Drimia indica</i> Roxb.	Bulb	211-217
21	Protopine	<i>Fumaria vaillantii</i>	Whole plant	218-229
22	Pseudopelletierine	<i>Punica granatum</i> L.	Stem bark	230-239
23	Purpurin	<i>Rubia cordifolia</i> L.	Root	240-248
24	Rutin	<i>Ruta chalepensis</i> L.	Leaf	249-265
25	□-Santonin	<i>Artemisia nilagirica</i>	Unopened	266-274
26	Scopoletin	<i>Evolvulus alsinoides</i> L.	Aerial part	275-292
27	Swertiamarin	<i>Swertia chirayita</i> Roxb.	Whole plant	293-304
28	Taraxerol	<i>Clitoria ternatea</i> L.	Root	305-318
29	Tetramethyl	<i>Holarrhena pubescens</i>	Stem bark	319-328
30	Trigonelline	<i>Trigonella foenum-</i>	Seed	329-340

9. Naik DG, Upadhye AS, Vaidya HS, Rajopadhye AA and Namjoshi TP. Following 21 monographs are published in Phytochemical Reference Standards of Selected Indian Medicinal Plants, Vol. 2 by Indian Council of Medical Research, Govt. of India, New Delhi, January 2012.

Sr. No.	Marker compound	Plant name	Plant part	Pg. Nos.
1	Amarogentin	<i>Swertia chirayita</i> Roxb.	Whole plant	1-12
2	Asclepin	<i>Asclepias curassavica</i> L.	Root	34-42
3	Asiatic acid	<i>Centella asiatica</i> L.	Arial part	43-54
4	Bassic acid	<i>Mimusops elengi</i> L.	Stem bark	93-102
5	Betaine	<i>Achyranthes aspera</i> L.	Arial part	103-112
6	Capsaicin	<i>Capsicum annuum</i> L.	Fruit	113-122
7	Echinocystic acid	<i>Albizia lebeck</i> L.	Leaf	123-132
8	Galangin	<i>Alpinia galanga</i> L.	Rhizome	133-144
9	Genistein	<i>Ougeinia oojeinensis</i>	Heartwood	145-156
10	Hayatin	<i>Cissampelos pareira</i> L.	Root	167-176
11	Hecogenin	<i>Woodfordia fruticosa</i> L.	Flower	177-187
12	Hederagenin	<i>Mimusops elengi</i> L.	Heartwood	188-198
13	Hesperidin	<i>Citrus aurantium</i> L.	Fruit	199-211
14	Indican	<i>Indigofera tinctoria</i> L.	Leaf	212-220
15	Malkanguniol	<i>Celastrus paniculatus</i>	Seed	221-230
16	Naringin	<i>Citrus sinensis</i> L.	Fruit	231-242
17	Neriifolin	<i>Cascabela thevetia</i> L.	Stem bark	243-252
18	Parkinsonin A	<i>Parkinsonia aculeate</i> L.	Flower	253-261
19	Tecoside	<i>Tecomella undulate</i> Sm.	Stem bark	272-279
20	Valerenic acid	<i>Valeriana officinalis</i> L.	Root	280-289
21	Voacangine	<i>Tabernaemontana</i>	Stem bark	290-301

10. Naik DG, Upadhye AS, Vaidya HS, Rajopadhye AA and Namjoshi TP. Following 9 monographs are published in Phytochemical Reference Standards of Selected Indian Medicinal Plants, Vol. 3 by Indian Council of Medical Research, Govt. of India, New Delhi, March 2014

Sr. No.	Marker compound	Plant name	Plant part	Pg. Nos.
1	Adifoline	<i>Haldina cordifolia</i> (Roxb.).	Heartwood	1-09
2	Cajanol	<i>Cajanus cajan</i> (L).	Root	77-85
3	<i>d</i> -Fenchone	<i>Foeniculum vulgare</i> Mill.	Fruits	171-186
4	Harmaline	<i>Peganum harmala</i> (L).	Seeds	210-219
5	Maslinic acid	<i>Ziziphus jujuba</i> Mill.	Fruits	252-264
6	Norepinephrine	<i>Portulaca oleracea</i> L.	Whole	275-283
7	Pulegone	<i>Lavandula bipinnata</i> (Roth)	Leaf	296-312
8	Randialic acid B	<i>Catunaregam spinosa</i>	Stem bark	313-322
9	Xanthinin	<i>Ougeinia oojeinensis</i> Hochr.	Aerial part	336-344
