

CURRICULUM VITAE

Mr. P.MARIMUTHU

Senior Research Fellow

Division of Agricultural Chemicals,
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Date of birth: 03-05-1978

Nationality: INDIAN

CAREER OBJECTIVES:

- To explore scientific facts and serve humanity

RESEARCH INTERESTS:

- Spice essential oils
- Spice oleoresins
- Chemical analysis of essential oils and oleoresins
- Testing of food or any biological samples for antioxidant and antimicrobial properties
- Organic synthesis
- Chemical analysis of aromatic rice

EDUCATION:

2006 to till date Working (w.e.f 1st March) as **Senior Research Fellow in a “Network project on Trasgenics in Crops” at Indian Agricultural Research Institute, New Delhi.**

2005 Ph. D. thesis submitted in Chemistry under the guidance of Prof. Gurdip Singh, DDU Gorakhpur University, Gorakhpur.

2002 GATE, 83.37 Percentile (Conducted by IISC, Bangalore)

2001 Master of Science in Chemistry from Madurai Kamaraj University, Madurai.

1999 Bachelor of Science in Chemistry from Madurai Kamaraj University, Madurai

FELLOWSHIPS OBTAINED:

- ✓ Junior Research Fellowship, Defence Research and Development Organisation (DRDO), Life Science Research Board, New Delhi from 02.12.2002 to 02.12.2004 on a project entitled, “*Spice Essential Oils-Potential Food Preservatives*”.
- ✓ Senior Research Fellowship, Defence Research and Development Organization (DRDO), Life Science Research Board, New Delhi from 02.12.2004 to 01.12.2005 on a project entitled, “*Spice Essential Oils-Potential Food Preservatives*”.
- ✓ Selected as Senior Research Fellowship by CSIR

- ✓ **Selected as Senior Research Fellowship by IARI in the network project entitled “Transgenics in crops”**

MEMBERSHIP IN SCIENTIFIC BODIES:

- ◆ Association of Food Scientists and Technologists AFST (I), Mysore.
- ◆ Pesticide Society of India, New Delhi.

Present work at Indian Agricultural Research Institute at New Delhi

The present work involves collection of essential oils from various transgenic rice varieties and analysis of chemical profile using GC and GC-MS techniques.

RESEARCH PROFILE:

Title of Doctoral Thesis: “Chemistry and biocidal activities of essential oils and oleoresins from spicy materials”

Summary of the Work Done:

Analysis of spice essential oils as well as oleoresins (spice extracts) is important now a day since they find immense application in the field of food, pharmaceutical, flavor and fragrance industries. The antioxidant and antimicrobial properties of essential oils and oleoresins intends to study the importance of spices or other aromatic plants. Hence, during my project period, I have studied antioxidant, antibacterial activities of various essential oils (collected by hydrodistillation) and their extracts (collected by soxhlet apparatus). Present duties include collection of essential oils and different solvent extracts from various spice materials, screening of their antioxidant, antifungal, antibacterial, insecticidal and antiviral activities. Chemical composition of the collected oils is also studied using various techniques such as GC and GC-MS. After separation and identification of major components, their antioxidative potential was evaluated in different model lipid systems such as linoleic acid system, linseed, rapeseed and mustard oils. The primary and secondary oxidation products in oils were evaluated using peroxide, thiobarbituric acid, *p*-anisidine and carbonyl values. Since particular method for evaluation of antioxidant activity gives

limited idea of the system. So different advanced methods and complementary assays such as DPPH free radical method, reducing power, thiobarbituric acid test and ferric thiocyanate was adopted. The voluminous results from all these detailed investigations are published in various journals of repute.

REFERENCES:

1. Dr. Gurdip Singh

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Gorakhpur – 273 009, India

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2. Prof. K. D. S. Yadav,

Chemistry Department

DDU Gorakhpur University,

Gorakhpur- 273 009

E-mail: kds_chemistry@rediffmail.com

I-LIST OF PUBLICATIONS

1. Gurdip Singh, **Palanisamy Marimuthu**, Carola S. de Heluani and Cesar A. N. Catalan “Antioxidant and biocidal activities of *Carum nigrum* essential oil, oleoresin and their selected components” **Journal of Agricultural and Food Chemistry**, **54**, 174-181 (2006).
2. Gurdip Singh, **P. Marimuthu**, Carola S de.Heluani and C. Catalan “Antimicrobial and antioxidant potentials of essential oil and acetone extract of *Myristica fragrans* Houtt. (aril part)” (Part 51)” **Journal of Food Science**, **70(2)**, M141-148, 2005.
3. Gurdip Singh, **P. Marimuthu**, H.S Murali, A.S Bawa. “Antioxidative and antibacterial potential of essential oils and extracts isolated from various spice materials” **Journal of Food Safety**, **25**, 130-145, 2005.
4. Gurdip Singh, **Palanisamy Marimuthu**, Carola S. de Heluani and C. Catalan “Chemical constituents, antimicrobial and antioxidant potentials of essential oil and acetone extract of *Nigella sativa* seeds” **Journal of the Science of Food and Agriculture**, **85**, 2297 – 2306, 2005.
5. Gurdip Singh, O. P. Singh, Sumitra Maurya, **P. Marimuthu**, M. P. de Lampasoma and C. Catalan. Composition of needle oil of *Juniperus communis* L. from north India, **Indian perfumer**, **49**, 163-167, 2005.
6. Gurdip Singh, **P. Marimuthu**, C. Catalan and M. P deLampasona “chemical, antioxidant and antifungal activities of volatile oil of black pepper and its acetone extract” **Journal of the Science of Food and Agriculture**, **84**, 1878-1884, 2004.

7. Gurdip Singh, **P. Marimuthu** “Advances in the analytical techniques of essential oils, *Review*, published in the Book entitled “**Processing, Analysis and Application of Essential Oils**, Ed by Jirovetz L and Buchbauer, GHar Krishna Bhalla & Sons, Dehradun, India, pp 136-146, 2005.
8. Gurdip Singh, **P. Marimuthu**, C. Catalan and M. P deLampasona “*Cuminum cyminum*. L – Chemical constituents, antifungal and antioxidant studies on its volatile oil and its solvent extract” **Indian Perfumer, Revised & Submitted (2005)**.
9. Sumitra Maurya, **P. Marimuthu**, Ashutosh Singh, G. P. Rao and Gurdip Singh, “Antiviral activity of some essential oils and their acetone extracts” **Journal of essential Oil Bearing Plants, Accepted (2006)**.
10. Ravi kant Upadhyay, Mukesh Kumar Chaubey, Gurdip Singh, Sumitra Maurya and **P. Marimuthu** “Toxicity and oviposition activity of some essential oils against *Bruchus chinensis* (Linn.)” **Journal of Stored Products Research, Submitted (2004)**
11. Gurdip Singh, **Palanisamy Marimuthu**, Carola S. de Heluani and C. Catalan Chemical, antioxidative and antimicrobial activities of essential oil and oleoresin of tailed pepper (*Piper Cubeba* L.), **Food Chemistry, Submitted (2005)**.
12. Gurdip Singh, Sumitra Maurya, **Palanisamy Marimuthu**, Shashi Kiran, Anil Kumar Semwal and Amrinder Singh Bawa, Potential application of spice essential oils and oleoresins as natural food preservative in yoghurt. **Indian Perfumer, Submitted (2006)**.
13. Gurdip Singh, Sumitra Maurya, **Palanisamy Marimuthu** and Jaime A. Teixeira, Review on the Applications of Essential Oils and Oleoresins as Antioxidant and Antimicrobial Agents, Global Science book Review, Japan (**In Press, 2006**).

II- Papers presented at Conference/Symposium

1. Gurdip Singh, Sumitra Maurya and **P. Marimuthu**, “Chemical antifungal, antioxidant and sprout suppressant activity of coriander oil and its oleoresin” paper presented and published in the proceedings of *International Conference on Emerging Frontiers at the Interface of Chemistry and Biology* (ICB-2003) held at RRL, Trivandrum, India during April 28-30, 2003, pp 53.
2. Gurdip Singh, Sumitra Maurya and **P. Marimuthu** “Preservation of butter and edible oils by Essential oils” paper presented and published in the *proceedings of Emerging Trends in Indian Medicinal Plants held at Lucknow, India during October 10-12, 2003*, pp 44.
3. Symposium attended: Medicinal plants farming, science and practice for improving financial status of Indian farmers; *Vision 21st century held at Gorakhpur University, India during June 26-27, 2004*.

4. Gurdip Singh, I. P. S. Kapoor, Sumitra Maurya, **P. Marimuthu**, Chandra Prakash Singh, Pratibha Srivastava and Vinod Kumar Yadav “Chemistry, antimicrobial and antioxidative potential of star anise volatile oil and acetone extract” paper presented and published in the National seminar **Biological chemistry: Advancing Frontiers** at *Gorakhpur University, India* during March 22-23, 2005, pp 47.

5. Gurdip Singh, Sumitra Maurya and **P. Marimuthu**, “Antioxidant activities of spice essential oils in different model systems” paper presented and published in the proceedings of *International Conference on Emerging Frontiers at the Interface of Chemistry and Biology* (ICB-2003) held at RRL, Trivandrum, India during April 28-30, 2003, pp 53.