

CODE: **SRI:07 2008**

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RESEARCH GROUP: **Nutritional biochemistry**

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| Staff | | | Students | | | |
|--------------|----------------|--------------|--------------|-----------|--------------------|-----------------|
| Academic PhD | Academic Other | Tech-nicians | Sandwich PhD | Local PhD | Sandwich MSc/MPhil | Local MSc/MPhil |
| 2 | | 1 | 1 | 2 | 1 | 5 |

| Awarded degrees | 95/02 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|----------------------|-------|---|------|---|------|---|------|---|------|---|------|---|------|---|
| S=Sandwich; L=Local | S | L | S | L | S | L | S | L | S | L | S | L | S | L |
| PhD | | | | 1 | 1 | | 1 | 1 | | | | | | 2 |
| MSc/MPhil/Licentiate | 4 | 3 | | 1 | | 1 | | 1 | | | | | | 2 |

| Publications | 95/02 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------------------|-------|------|------|------|------|------|------|
| International journals | 9 | 2 | | 1 | 1 | 1 | 2 |
| National journals | 11 | 2 | 4 | 4 | 4 | 1 | 2 |
| Conference reports | 8 | 5 | 10 | 8 | | | |

| | | | | | | | |
|--|---|--|--|--|--|---|---|
| Arrangement of work-shops/symposia/conf. | 3 | | | | | 1 | 1 |
|--|---|--|--|--|--|---|---|

| | | | | | | | |
|--|-----|----|----|----|--|----|--|
| Visits by IPICS staff/ Swedish scientists | 8/5 | 1/ | 1/ | 2/ | | 1/ | |
|--|-----|----|----|----|--|----|--|

| No. of participants trained in IPICS prog. | Sweden or other country in Europe | Regional laboratory |
|--|-----------------------------------|---------------------|
| Until December 2008 | 6 | 3 |

| IPICS funding (total for the specified period) | Period of funding | Fellowship months (total no.) | Training costs (k-SEK) | Other costs (k-SEK) | Total (k-SEK) |
|--|-------------------|-------------------------------|------------------------|---------------------|---------------|
| | 1995 Dec 2008 | 60 | 1055 | 2271 | 33 28 |

| | |
|------------------------------|------|
| Cooperation initiated | 1995 |
|------------------------------|------|

SUMMARY OF THE RESEARCH GROUP SRI:07

Palmyrah fruit pulp (PFP) is vastly under-utilised due to the presence of a bitter principle which has been found to be a steroidal tetraglycoside (F-II). All the types of fruit pulp can be debittered by the enzyme preparation naringinase and some by heat stable alpha-amylase. In addition to the bitter principle there are other steroidal glycosides (flabelliferins) one of which (FB) inhibits yeast and bacteria. FB is also hydrolysed by naringinase. The flabelliferin profile varies with variety of PFP. The aim of the study is to determine the optimum end-use (which is flabelliferin dependant) for various types of fruit pulp. This will include cordials (beverages) (for types lacking F-II or with alpha-amylase hydrolysable F-II). Alcoholic fermentation (when FB is absent), traditional products (both FB & non-hydrolysable F-II present).

In order to place this study on a scientific basis the structure of flabelliferins and the motifs of hydrolysis need to be determined.

Studies are being conducted into the dietary fibre (soluble and insoluble) content and digestible carbohydrate content of Sri Lankan vegetable foods. This study will help update the food composition tables of Sri Lanka, which do not indicate dietary fibre and where carbohydrate content is indicated only by calculation of "difference" .

Studies are also in progress on the food value of Canavalia gladiata and Mucuna utilis as well as the hypoglycaemic activity of some Sri Lankan herbs.

Keywords: palmyrah, flabelliferins, dietary fibre, Canavalia gladiata, Mucuna utilis, hypoglycaemic activity, food value

Training, research visits:

| Year | Participant (months) | Research host | Research field |
|-------------|-----------------------------|-------------------------------------|------------------------------------|
| 95/96 | Sagarika Ekanayake (1) | B Nair, LU | Nutritional Biochemisry |
| 97/98 | Sagarika Ekanayake (8) | B Nair, LU | Nutritional Biochemisry |
| 98 | Janaka Nikawela (3) | T Norin, KTH | Natural Products |
| 99 | Sagarika Ekanayake (4) | B Nair, LU | Applied Nutrition |
| 00/01 | Dharshika Ariyasena (5) | P Baeckström, KTH | Org Chem |
| 00/01 | Sagarika Ekanayake (5) | B Nair, LU/ Umeå Univ | Applied Nutrition/ Chemometrics |
| 02 | Chandrika Gamage (4) | Brazil | Vitamin A studies |
| 02 | Sagarika Ekanayake (1) | B Nair, LU | Applied Nutrition/ |
| 03 | Chandrika Gamage (5) | U Svanberg, SIK Chalmers, Sweden | Vitamin A studies |
| 03 | Sagarika Ekanayake (3) | N G Asp, LU | Applied Nutrition |
| 04 | Sagarika Ekanayake (3) | N G Asp, LU | Applied Nutrition |
| 05 | Sagarika Ekanayake (3) | N G Asp, LU | Applied Nutrition |

| | | | |
|-------|------------------------|--|---|
| 05 | Attahayake Keerthi (3) | V Reutrakul, Mahidol Univ. Thailand | Structure elucidation of some bioactive compounds from palmyrah |
| 06 | Priyadarshami (3) | U Svanberg, SIK Chalmers, Sweden | Nutritional Biochemisry |
| 06/07 | Thushari Bandara (5) | L Ali, BIRDEM, Dhaka Bangladesh | Nutritional Biochemisry |
| 07 | Attahayake Keerthi (2) | I Chodhury, HEJ inst. Karachi Univ., Pakistan | Nutritional Biochemisry |

Visit by IPICS staff/reference group:

| | |
|------------|------------------------------------|
| R Liminga | 1995, 1996 |
| L Sjöblom | 1995, 2003, 2005 |
| M Åkerblom | 1997, 1999, 2000, 2001, 2004, 2005 |
| P Sundin | 2007 |

Visits by Swedish scientists involved in the cooperation:

| | |
|-------------|------|
| B Nair | 1998 |
| P Bäckström | 2001 |
| P-E Jansson | 2001 |

Funding: (k-SEK)

| Years | Training/ Exchange | Other project costs (equipment etc.) | Total |
|--------------------|-----------------------|---|-------------|
| 1995/96(18 months) | 25 | 116 | 141 |
| 1996/97 | 81 | 246 | 327 |
| 1997/98 | 144 | 120 | 264 |
| 1999 | 67 | 425 | 492 |
| 2000 | 149 | 132 | 281 |
| 2001 | 12 | 43 | 55 |
| 2002 | 109 | 147 | 256 |
| 2003 | 122 | 220 | 342 |
| 2004 | 128 | 154 | 284 |
| 2005 | 63 | 218 | 281 |
| 2006 | 23 | 169 | 192 |
| 2007 | 83 | 149 | 232 |
| 2008 | 49 | 132 | 181 |
| Total | 1055 | 2271 | 3328 |

Financial support from other sources:

- 1) NARESA
- 2) University