

PART III

INNOVATIONS for MANIPUR

This section contains details of national innovations,
which are deemed suitable for introduction
in Manipur





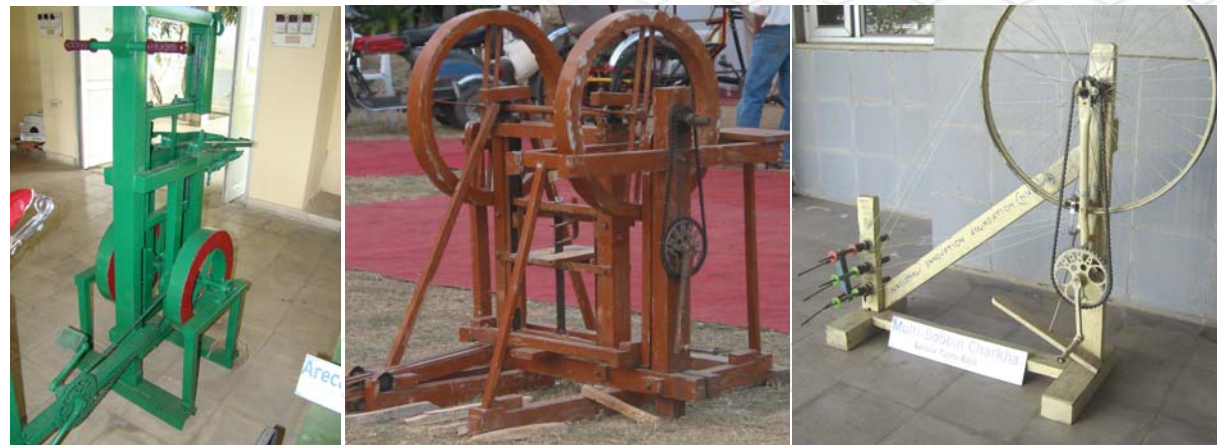
Karuna Kant Nath
Assam

Manual wood cutting

Cutting of wood effectively and efficiently is achieved by this machine. The equipment is cost efficient, and can be manually operated with both hand and foot pedal options. Most importantly it is portable, and can be taken to any worksite and has more productivity compared to manual sawing.

This equipment consumes lesser time and labour compared to available saws and has a mechanism and linkages similar to manually operated sewing machine. The work of three labourers can be done by one labour using this machine. The innovator has also developed a multi bobin *charkha* and a bamboo cross cutter. He has been supported under the *MVIF* scheme of NIF and has been doing modest business in the area.

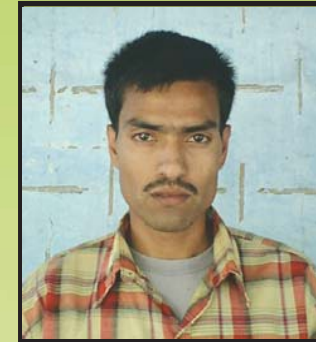
Karuna was awarded during the Third National Competition of NIF.



Egg incubator

Eggs need controlled heat and humidity to incubate properly. The innovator has developed an incubator, which is made up of plywood lined with thermocol. The unit is divided into two chambers. It can be heated by electric light as well as the kerosene lamp. The kerosene lamp is used in case of power failure. There is a regulator to control the intensity of the light.

NIF has facilitated the marketing of a few units in the surrounding area and to DRDA, Sibsagar along with one unit to a NGO in Manipur. The innovator has also been supported under the *MVIF* scheme.



Milonjyoti Das
Assam



Nasim Ahmed
Assam

Bamboo polishing machine

Nasim has developed a machine that polishes bamboo sticks used for making bamboo curtains and mats. The bamboo sticks are rubbed mechanically for smoothing. It can polish 100 kg of bamboo sticks at a time within 90 minutes. It reduces labour cost many folds. Only one labour is required for running the machine and adjusting the bamboo sticks.



Multi purpose wood-working machine

Small carpentry workshops have difficulty in purchasing and using multiple machines due to high initial costs, space constraints and maintenance considerations.

This multipurpose machine with minimal footprint, is built to address all major workshop needs, allowing completing the sequence of wood-working operations in one place, and allowing better control on finished product.



Ghonakanta Gogoi
Assam





A. Muruganantham
Tamil Nadu

Sanitary napkin making machine: An option for women entrepreneurship

Sanitary napkins, a universally needed product, have a very low penetration in India due to high price and the traditional trend of using cheaper but unhygienic old cloth pieces. The innovator has developed a machine that produces quality sanitary napkins at a low cost.

One can prepare sanitary napkins with industry standard raw materials while cutting down the cost in production. It requires three to four persons to produce two pads per minute. Costing less than half of conventional options, this machine produces sanitary pads @ Rs.1 to Rs. 1.50 per pad approximately.

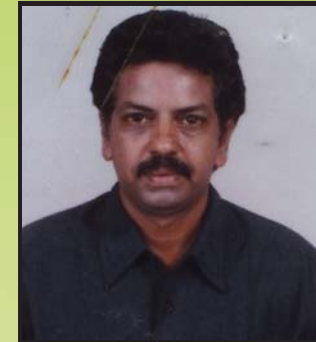
The innovator prefers to sell the napkin making machinery only to self-help groups of women. He has also designed a napkin vending machine such that one can put a coin and get a pad. With the support from the *Micro Venture Innovation Fund* scheme of NIF, the innovator has been able to install over fifty units in seven states.



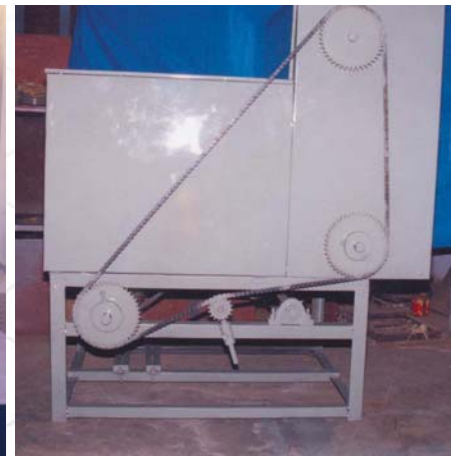
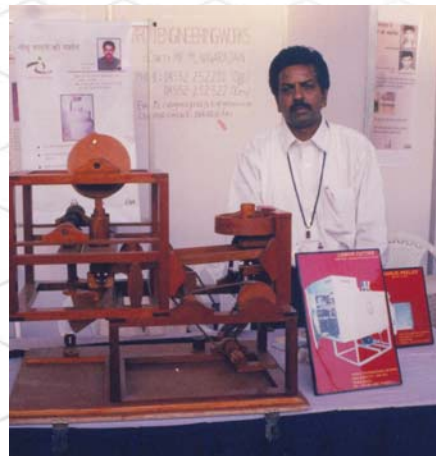
Garlic peeling and lemon cutting machine

Faster peeling of garlic in an effective way is a major requirement in the pickle industry. This product is a food-grade, fully automated machinery designed for bulk quantity peeling of garlic. The machine ensures minimal damage and has wide application in making pickles and herbal medicines. The machine is energy efficient, saves labour, and has low capital and operating cost. It frees the industry from capacity constraints caused by shortage of labour in peak seasons.

The second product is also used in pickle industry, but for cutting lemons. It is a cost effective machine, having innovative design, with continuous feeding system. It performs precise and standard cutting of large quantity of lemons in uniform shape and size. It can be operated by one person and cuts lemon into eight equal pieces. The innovator has been able to run a good business with the financial support of MVIF and marketing effort of NIF.



M. Nagarajan
Tamil Nadu





Raghav Gowda
Karnataka

Manual milking machine

Safe milking of cows/buffaloes is a requirement across rural India and this product is an efficient step in that direction. The product is a low cost, manually operated device that helps farmers to milk the animal hygienically and also reduces drudgery in the process.

The machine has simple controls and can be easily operated by women as well. The creation of suction and low vacuum makes it suitable for other applications also. NIF has been giving marketing support to the innovator. As a result, this machine has also been sold to customers in Phillipines, Uganda and Ethiopia apart from India.



Hand operated water lifting device

An efficient way of pumping water to meet requirements in a cost effective way is always a challenge in rural India.

Developed from locally available materials, this hand operated water lifting device is simple in design, delivers high discharge and is low cost compared to conventional hand pump, bucket pump, and bicycle operated pumps.

The Innovation has been taken up for value addition at CMERI, Durgapur (WB) through the NIF-CSIR JIC Fellowship Scheme.



N Sakthimainthan
Tamil Nadu





Dharamveer
Haryana

Aloe vera gel extractor

The innovator has developed an effective multipurpose unit capable of pulverizing, steaming, and extraction of gel for herbal applications.

With this device, the innovator uses the specially designed pressure cooking chamber to extract the essence from *Aloe vera*. Being a compact portable unit, it can be quickly and easily transported and used anywhere even in the fields, to process herbs and deliver on demand. The present machine has a capacity to process 100 kg of *Aloe vera* per hour. The innovator was supported for production and commercialisation through GIAN North . One unit has been sent to Kenya on a pilot basis for application feasibility study in the country. Once the feasibility is confirmed, a contract order from the country is expected for more number of units.



Mobile operated switch and multi-media poster

Imagine a village where the farmer has the luxury of being able to stay at home and switch his irrigation pump in the faraway field on or off as required during the day or at night. This is made possible by this innovation, which uses the power of mobile telephony to trigger electrical control switches.

The farmer can remotely know the status of the pump in his cell phone and turn the motor on or off by calling the particular configured number. It activates the switching by certain number of rings and hence incurs no call charges. Prem Singh has developed several other innovations, one of which is the viewer triggered multi-media poster. If any agency wants to communicate some graphic message with different language audios or videos, this multi-media poster can be very useful. NIF facilitated a mumbai based company to purchase two hundred units of the talking poster worth around eight lakh rupees for diffusion in various states. These were made available in five local languages.



Prem Singh Saini
Haryana





Arvindbhai Patel
Gujarat

Auto air kick pump

This innovation is a low cost, portable, compact aid to inflate tyre tubes/punctures of any vehicle having kick start or auto start mechanism so as to fix the problem on the spot and enable the rider to reach the nearby gas station or repair shop.

This device uses the existing air inside the compressor, so that, while kick starting, this air is utilized and transferred to the tube. A pinch of polymer granules is also inserted to seal the leakage in the tube.

NIF had facilitated sales of a few hundred pieces to customers in Assam and Arunachal Pradesh through dealership technology licensing and local entrepreneurs.

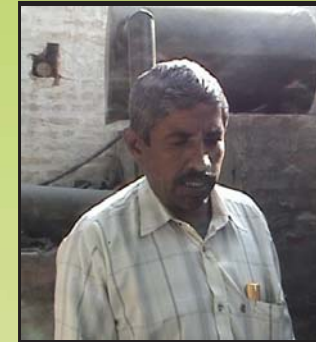


Biomass gasification system

There are lots of villages in the country which are still not electrified or are receiving power erratically. Crude oil is not a very likely solution as it is depleting and the price is also going higher day by day. Use of biomass as a fuel therefore appears to be a good solution!

People using the biomass gas (producer gas) as a fuel generally complains of choking in the engine after running for a certain period of time. The innovator has changed the conventional design of gasifiers especially the filters and cooling unit to get clean gas, ensuring smooth operation of engine at low operational cost. On an average the biomass requirement is one kg/kW-h and the costs of 10 kW, 25 kW, 30 kW and 35 kW biomass gasifier system are Rs. 1,25,000, Rs. 2,00,000, Rs. 3,00,000 and Rs. 3,25,000, respectively.

Scientists from TERI (The Energy Research Institute) has confirmed the uniqueness and over fifty users have confirmed its operational practicability. The innovator has sold over fifty units after getting *MVIF* Support from National Innovation Foundation through GIAN North.



Rai Singh Dahiya
Rajasthan





Imli Toshi Namo
Nagaland

Hydro generator using bamboo composite

Energy generation and pumping water for irrigation is a widespread rural need.

The innovator has used the bamboo powder, a by-product from the bamboo lathe machine invented by him, and mixed it with a resin to create a strong composite to fabricate the lightweight hydro turbine for generation of energy.



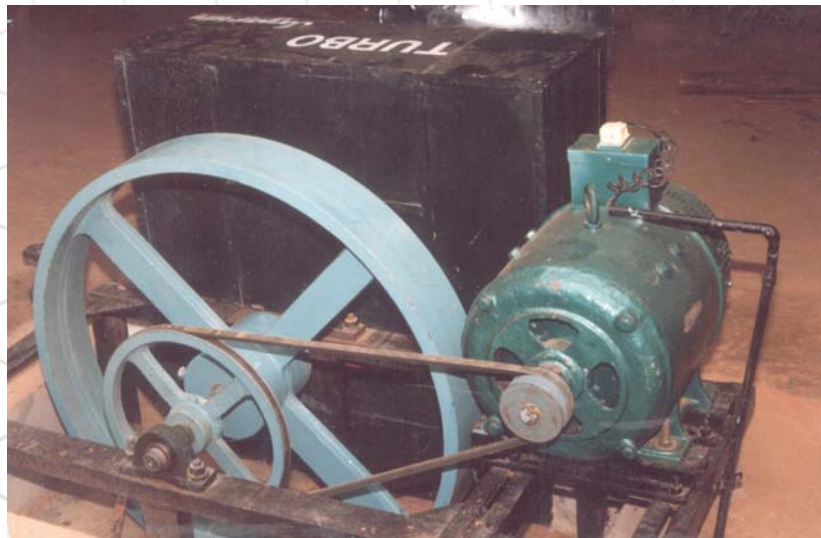
Modified hydro electricity turbine

Electricity supply in the hills is always a problem with either the difficulty of access or distribution or disruption.

Hydro electric turbine is specifically designed for the hills. It costs Rs.30,000 and meets the individual electric needs of a rural household. The innovator has installed a few of these turbines in the hilly villages of Karnataka.



G. K. Ratnakar
Karnataka





Dadaji Ramaji Khobragade
Maharashtra

HMT: An improved paddy variety

Khobragade selected and bred the HMT rice variety from the conventional 'Patel 3', a popular variety developed by Dr. J. P. Patel, JNKV Agriculture University, Jabalpur. He succeeded after five years of continuous study and research on a small farm owned by him without any support from the scientific community. This variety has an average yield of 40 – 45 quintals per hectare with short grains, high rice recovery (80 %), better aroma and cooking quality in comparison with the parent ones. Most remarkable feature of the variety is the thinness of grain. It has been included as a standard reference for thinness by Protection of Plant Variety and Farmers' Right Authority (PPVFRA).

He won the National Award in NIF's Third National Competition. NIF has filed an application under PPVFRA 2001 to register his variety. Apart from HMT he has also developed six other paddy varieties namely DRK, Vijay Anand, Nanded Chinur, Nanded 92, Deepak Ratna and Nanded Hira. He regrets that local agricultural university took the credit merely for purifying the seeds and did not give him the due honour. HMT has diffused in more than one lakh acres in five states.



Mysore Mallige: A unique paddy variety

Shri Lingamadaiah, a graduate in law, is known for his variety '*Mysore Malligae*' in Karnataka, Tamil Nadu and parts of Andhra Pradesh. *Mysore Malligae*' developed through systematic recurrent selection by the innovator. It is an early bearing variety with a yield of about 36 quintals per acre (9000kg/ha). The innovator was facing pest and disease problem in paddy for many years and also getting low milling recovery. He started multiplying the new paddy variety by selection procedure to get pest and disease free variety with higher milling recovery. It yields more even without any extra input and is of short duration, resistant to lodging and milling recovery is about 80 percent. If grown organically, hardly any pest and disease attack is observed. He is growing this variety since 1994. It has covered 25-30% of paddy growing area in the region.

He won the first national award in the second national competition of National Innovation Foundation and was also honored with Beeja Mitra award from GREEN Foundation.



M. Lingamadaiah
Karnataka

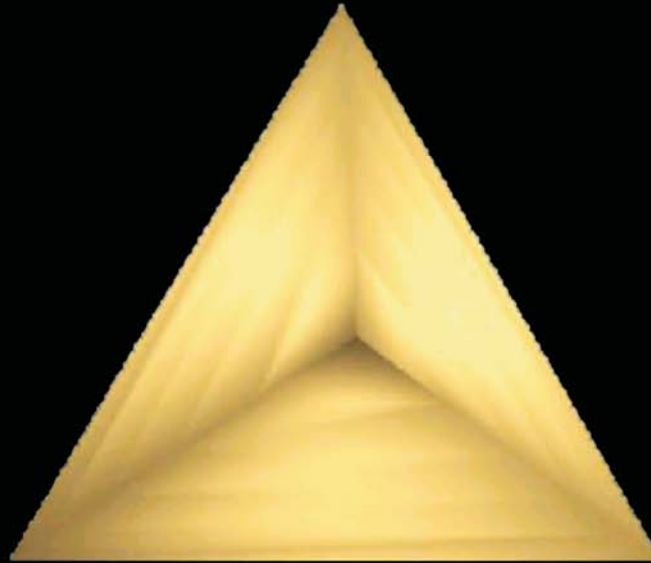


Endnotes & References

- 1) Reddy, M.B., Reddy, K.R. and Reddy, M.N. 1989. A survey of plant crude drugs of Anantapur district, Andhra Pradesh, India. *Int. J. Crude Drug Res.* 27 (3): 145-155.
- 2) Bhattarai, N.K. 1994. Folk herbal remedies for gynaecological complaints in Central Nepal. *Int. J. Pharmacog.* 32 (1): 13-26.
- 3) Shrivastava, R.K. 1985. *Aegle marmelos*: An Ipso Facto plant of India. *J. Res. Edu. Ind. Med.* 4 (3/4): 21-25.
- 4) Himalaya healthcare products, <http://www.himalayahealthcare.com/products.htm>, downloaded on 20.08.2008.
- 5) Bazar of India herbal products, <http://www.bazaarofindia.com/productsnew.asp?pid=100K38&catid=BC&subcatid=CL>, downloaded on 04.08.2008.
- 6) Pushpangadan, P. and Dhan, P. 2006. *Herbal nutraceutical formulation for diabetics and process for preparing the same*. CSIR, New Delhi. (Pat no. 7014872 dt. 21.03.2006; <http://patft.uspto.gov>, downloaded on 20.08.2008).
- 7) Rao, J.M., Sampathkumar, U., Sastry, B.S., Yadav, J.S., Raghavan, K.V., Palit, G., Rai, D., Varier, P.M., Muraleedharan, T.S. and Muraleedharan, K. 2003. *Composition for treating gastric ulcer and a process for preparing the same*. (Pat no. 20030180398 dt. 25.09.2003; <http://www.freepatentsonline.com>, downloaded on 20.08.2008).
- 8) Adesina, S.K. 1982. Studies on some plants used as anticonvulsants in Amerindian and African traditional medicine. *Fitoterapia* 53 : 147-162.
- 9) Panthong, A., Kanjanapothi, D. and Taylor, W.C. 1986. Ethnobotanical review of medicinal plants from Thai traditional books, Part 1: plants with antiinflammatory, anti-asthmatic and antihypertensive properties. *J. Ethnopharmacol.* 18 (3): 213-228.
- 10) Prajapati, N.D., Purohit, S.S., Sharma, A.K. and Kumar, T. 2007. *A Handbook of Medicinal Plants*. Jodhpur, Agrobios (India), Section-II, pp. 1-554.
- 11) Aravind Herbal Labs (P) Limited, <http://www.tradeindia.com/selloffer/1394593/Herbal-Tea.html>, downloaded on 29.08.2008.
- 12) Enrico, D.V., Antonio, P., Chiara, C., Luisa, G., Gianfranco, M. and Emanuella, M. 2008. *A novel use of antidepressant compounds and related compositions*. Medestea Internazionale S.P.A. Italy. (Pub no. WO/2008/078353 dt. 03.07.2008; <http://www.freepatentsonline.com>, downloaded on 29.08.2008).
- 13) Manandhar, N.P. 1995. An inventory of some herbal drugs of Myagdi district, Nepal. *Econ. Bot.* 49 (4): 371-379.
- 14) Sahu, T.R. 1984. Less known uses of weeds as medicinal plants. *Ancient. Sci. Life.* 3 (4): 245-249.
- 15) Manandhar, N.P. 1995. An inventory of some vegetable drug resources of Makawanpur district, Nepal. *Fitoterapia* 66 (3): 231-238.
- 16) Tropilab, <http://tropilab.com/jatrophatincture.html>, downloaded on 30.06.2008.
- 17) Pushpangadan, P., Mehrotra, S., Rawat, A.K.S., Rao, Ch.V., Ojha, S.K. and Aziz, I. 2008. *Herbal composition for cuts, burns and wounds*. CSIR, New Delhi. (Pat no. 7344737 dt.18.03.2008; <http://patft.uspto.gov>, downloaded on 23.10.2008).
- 18) Tabata, M., Sezik, E., Honda, G., Yesilada, E., Fukui, H., Goto K and Ikeshiro, Y. 1994. Traditional Medicine in Turkey III. Folk Medicine in East Anatolia, Van and Bitlis Provinces. *Int. J. Pharmacog.* 32 (1): 3-12.
- 19) Tamsang, K.P. 2004. *Glossary of Lepcha medicinal plants*, Kalimpong, India, Mani Printing Press, pp. 7-19.
- 20) Wenming, T. and Fenghuang, C.2008. *Anti-tumor medicine extracted from Juglans regia and preparation method thereof*. Guizhou University (Pub no. CN101185671 dt.28.05.2008; <http://v3.espacenet.com> downloaded on 04.11.2008)

- 21) Pushpangadan, P., Pal, M., Dixit, B.S., Banerjee, R. and Rao, Ch.V. 2006. *Herbal black dye used in beautifying the hair and its applications*. CSIR, New Delhi. (Pub no. WO2006061847 dt. 15.06.2006; <http://v3.espacenet.com>, downloaded on 04.11.2008)
- 22) Rathore, A., Juneja, R.K. and Tandon, J.S. 1989. An iridoid glucoside from *Nyctanthes arbortristis*. *Phytochemistry* 28 (7): 1913-1917.
- 23) Dixit, R.S. and Pandey, D.C. 1984. Plants used as folk-medicine in Jhansi and Lalitpur sections of Bundelkhand, Uttar Pradesh. *Int. J. Crude Drug Res.* 22 (1): 47-51.
- 24) Lupin Herbal, <http://www.lupinworld.com/herbal/deepactos.htm>, downloaded on 21.08.2008.
- 25) Chattopadhyay, S., Achari, B., Poddar, A. and Kumar, A. 2007. *Extracts from Nyctanthes arbortristis for the treatment of Leishmaniasis*. CSIR, New Delhi. (Pub no. WO/2007/042902 dt. 09.04.2007; <http://www.freepatentsonline.com>, downloaded on 22.08.2008).
- 26) Pushpangadan, P., Mehrotra, S., Rawat, A.K.S., Khatoon, S. and Govindarajan, R. 2006. *Safe, eco-friendly, health protective herbal colours and aroma useful for cosmaceutical applications*. CSIR, New Delhi. (Pat no. 20060115505 dt. 01.06.2006; <http://appft1.uspto.gov>, downloaded on 22.08.2008).
- 27) Spring, M.A. 1989. Ethnopharmacologic analysis of medicinal plants used by Laotian Hmong refugees in Minnesota. *J. Ethnopharmacol.* 26 (1): 65-91.
- 28) Zagari, A. 1992. *Medicinal plants*. Vol. 4. (5th Ed.) Tehran, Iran. Tehran University Publications, p. 969.
- 29) Sebastian, M.K. and Bhandari, M.M. 1984. Medico-ethnobotany of Mount Abu, Rajasthan, India. *J. Ethnopharmacol.* 12 (2): 223-230.
- 30) Hwang, Shie-Ming. 2001. *Process for preparing an anti-viral medicinal product from plant extracts*. Sage R&D, Columbus, USA. (Pat no. 6214350 dt. 10.04.2001; <http://patft.uspto.gov>, downloaded on 25.08.2008).
- 31) Tsai, Hsiu-Hsien, Hwang, Shie-Ming and Kung, Pai-Chu. 1998. *Use of plant extracts for treatment of HIV, HCV and HBV infections*. Sage R&D, Columbus, USA. (Pat no. 5837257 dt.17.11.1998; <http://patft.uspto.gov>, downloaded on 25.08.2008).
- 32) Nagaraju, N. and Rao, K.N. 1990. A survey of plant crude drugs of Rayalaseema, Andhra Pradesh, India. *J. Ethnopharmacol.* 29 (2): 137-158.
- 33) Brindavanam, N.B., Katiyar, C. and Rao, Y.V. 2003. *Novel herbal composition for the management of bronchial asthma and a process of manufacturing the same*. Foley & Lardner, Bernhard D. Saxe, Washington, USA. (Pat. app. no. 20030228383, dt. 22.05.2003; <http://www.freepatentsonline.com>, downloaded on 08.01.2009).
- 34) Mazzio, E. and Soliman, K. 2007. *Nutraceutical composition and method of use for treatment / prevention of cancer*. Elizabeth Mazzio; Florida A & M University, Tallahassee, USA. (Pat. app. no. 20070248693, dt.25.10.2007; <http://www.freepatentsonline.com>, downloaded on 08.01.2009).
- 35) Singh, V.K. and Ali, Z.A. 1992. A contribution to the ethnopharmacological study of the Udaipur forests of Rajasthan, India. *Fitoterapia* 63 (2): 136-144.
- 36) Gupta, S., Yadava, J.N.S. and Tandon, J.S. 1993. Antisecretory (antidiarrhoeal) activity of Indian medicinal plants against *Escherichia coli* enterotoxin-induced secretion in rabbit and guinea pig ileal loop models. *Int. J. Pharmacog.* 31 (3): 198-204.
- 37) Solanki, R.S. 2003. *Herbal formulation*. Sahajanand Biotech Private Ltd, India. (Pub no. GB2378384 dt. 12.02.2003; <http://v3.espacenet.com>, downloaded on 23.10.2008).
- 38) Pushpangadan, P., Rao, Ch.V., Rawat, A.K.S., Ojha, S.K. and Reddy, G.D. 2008. *Anti-allergic herbal formulation*. CSIR, New Delhi. (Pat no. 7344739 dt. 28.12.2004; <http://patft.uspto.gov> downloaded on 22.10.2008).

Innovation



Investment

Enterprise



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