

Problems/Hazards in consumption of fresh fruits and vegetables & Our Technological Solution

A.	Problems/ Hazards	<p>Pesticides are used for controlling pest in most agricultural crops including vegetables and fruits. These pesticides can be insecticides, fungicides, weedicides etc. Insecticides and fungicides are widely used on vegetables due to extensive incidence of insects and diseases on vegetables. The increasing demand of vegetables has also led to the increased use of pesticides which has been a key factor in increased productivity of the vegetable crops in India. However, due to poor awareness about safe use of pesticides and strong desire to get better price in the market, farmers fail to adopt the right doses, method of pesticide application and do not observe the safe waiting period before harvest. As a consequence, farm-gate vegetables and fruits are frequently laced with toxic pesticide residues mostly on the surface of the vegetables and fruits.</p> <p>Vegetables <i>and fruits</i> sold in major cities contain pesticides and in many cases these pesticides are present in alarmingly higher levels. Elsewhere it has been reported that year after year there is an increasing trend in the number of samples having pesticide residues above the maximum recommended limit in many vegetables fruits and other edible items. A study was conducted in Uttarakhand, to monitor the levels of pesticide residues in vegetables under the leadership of Dr. Anjana Srivastava, <i>Professor in Chemistry Deptt. CBSH</i>. The study revealed the presence of high levels of several pesticides like chlorpyrifos, cypermethrin, imidacloprid, fipronil, carbendazim and azoxystrobin etc.in vegetables. Rather the vegetables were found to be laced with pesticides as no waiting period is observed by the farmers and their produce is brought to the market immediately after the last application of pesticides. For example, we have recently come across a situation in nearby villages where farmers are spraying coragen insecticide on brinjals and guavas in the evening and plucking the same in the morning for selling in the market. The buyers/consumers are unaware of the</p>
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		<p>chemical which they are taking inside their body. The presence of high levels of pesticides in common food items like vegetables and fruits, many of which are consumed fresh like tomato, green chillies, capsicum, cabbage, apple, guava etc., is a matter of great concern as the consumption of such contaminated food items results in serious health problems like cancer and neurological ailments etc. Simple washing of the raw vegetables in water or saline solution has long been practiced in every household to reduce the toxicants but as far as the removal of pesticide residues is concerned the results have always been less encouraging. Hence, there is a dire need for a cost effective method to decontaminate these food items from toxic pesticide residues to combat this problem at household level so that consumers may ensure that fruits and vegetables consumed by the family are safe.</p>
<p>B.</p>	<p>Our Technological Solution to the Problem</p>	<p>In the above context, the scientists of Pantnagar university have invented an economic and eco-friendly formulation (DECONTAMINANT FORMULATION FOR FARM-GATE VEGETABLES AND PROCESS FOR PREPARING THE SAME Patent no. 300279, dated 23.1.2015) which can be used to decontaminate the vegetable and fruits just by dipping these commodities in diluted suspension for few (10-15) minutes and then finally washing with tap water. The invention has been made by Dr. Anjana Srivastava, Deptt. of Chemistry, CBSH and her colleagues. The formulation is highly effective in reducing the toxic pesticide residues in vegetables and fruits and can be utilized for decontamination of pesticides in these horticultural crops throughout the country especially at house hold levels. The formulation does not affect the colour, appearance or taste of vegetable or fruit.</p> <p>Moreover, since the preparation cost of this eco-friendly formulation is very low, it is an affordable option both at household level as well as for industrial production and sale where it can serve as a profitable option for entrepreneurs. Interested companies/entrepreneurs may approach citing reference to the details of technology presented below:</p>

C.	Title Patent No. Date of Pate Place of Invention	Decontaminant Formulation for Farm-Gate Vegetable and Process for preparing the Same 300279 23.01.2015 G.B. Pant University of Agriculture & Technology, Pantnagar, Udham Singh Nagar, Pantnagar can be reached by train, Bus, taxi and air services. Also it can be reached by train from New Delhi by Kathgodam Shatabdi Express which stops at Rudrapur and Lalkuan, The two nearby stations for Pantnagar on New Delhi-Kathgodam route.
D.	Inventors	(i.)Dr. Anjana Srivastava, (ii) Dr. Shailendra Singh Chauhan, (iii) Dr. Anand Singh, Deptt. of Chemistry, College of Basic Science & Humanities (iv) Dr. Prakash Chandra Srivastava, Deptt. of Social Science, College of Agriculture, GB. Pant University of Agriculture & Technology, Pantnagar
E.	Owners	G.B. Pant University of Agriculture & Technology, Pantnagar
F.	For further details	Please contact Chief Executive Officer, Intellectual Property Management Centre (IPMC), PCPGR Building, G.B. Pant University of Agriculture & Technology, Pantnagar, Mob. No. 9568090543,