

# And now 'ahimsa' saris

By M. Malleswara Rao

HYDERABAD, NOV. 26. When film actress Akkineni Amala wanted what she called an "ahimsa" (non-violence) silk sari, rejecting outright a pure silk Punjabi suit offered as a gift, the salesmen at APCO's biggest outlet at Abids here were rather perplexed. "What has a silk sari got to do with the Gandian principle?", they queried among themselves but there was no enlightenment till the Blue Cross activist herself explained the connection.

The silk for making the silk sari is obtained from silkworm. The normal process requires the sericulturist to commit a mass murder of at least 1,000-1,500 worms lying in as many cocoons for a sari of normal length—5.5 metres. The farmer grows the grey-yellow worms artificially by keeping the eggs in bamboo baskets and feeding them with mulberry leaves when they assume life.

As the silky worms consume leaves, a kind of filament called "fibroid" resembling thread uninterruptedly oozes out of their mouths. The fine thread ejected out becomes a bundle and gains the shape of a nest named cocoon, imprisoning the worm inside. If nature is allowed to fend for itself, the worm would have made a hole and pierced out of the shell as a butterfly. These "pierced cocoons", as they are called, are neither preferred nor used for thread from them comes in pieces. As an alternative, the sericulturist dumps all the cocoons in boiling water to take out the silk thread in a single piece, a process which kills the worms inside. A boiled cocoon, it is said, gives thread stretching for over a kilometre.

A senior technical assistant had to make great efforts and for months to get one sari of Amala's prescription, wearing which the actress had given a dance performance in Australia. Another VIP visitor to the APCO outlet, the wife of the former President, Mr. R. Venkataraman, however, had to go empty-handed as the APCO and perhaps its 800-odd primaries and individual weavers in the State were helpless regarding the "ahimsa" sari at that time as they are now.

Environmentalists see nothing but "himsa" (violence) in silk saris of any variety—be it Kanchi, Dharamavaram, Mysore, Gadwal, Narayanpet or Venkatagiri, and consider it as "heinous" to do puja wearing them.

APCO's senior technical assistant, Mr Kusuma Rajaiah, has taken upon himself the mission to provide "ahimsa" saris—the saris made out of the silk obtained without killing worms. He collects "pierced cocoons" either from SERIFED of the State Government or private farmers which means that the worms would have gone out already, and extracts the thread in a single piece employing a special native process with the help of some machines. This is normally called "spunsilk" but the products made by him which include angavastrams apart from saris, are as shining as the ones made out of the the silk of "boiled cocoons".

The non-violent means, however, is costly, he says. Mr Rajaiah approached a spinning mill at Raipur in Chattisgarh with 100 kg of "pierced cocoons" purchased from a seed unit at Pulamaneru in Chittoor district, to get the required silk yarn for making an "ahimsa" sari. He had to wait for three to four months for the yarn which was to come out of the special process. In the end, he could secure only 16 kg of yarn out of 100 kg of cocoons with each kg of yarn given being charged Rs 1,000 by the mills.

Yet, his spirit is undying and wants to continue the mission and, by that way, India's rich tradition of non-violence. But alas, there are too few people among women who know the subtle difference between the sari made out of "himsa" and the one coming out through "ahimsa". He has no ready market. Either he has to know where his customers are or he should be known to them. Neither is possible under the present circumstances, he laments.

At best what he could obtain from the Government is that the Director for National Institute for Fashion Technology issue a certificate saying that the saris made by him are "eco-friendly".

Mr. D. Anjaneyulu in Prakasam, Mr. A. Prabhakara Reddy with Mr. S. Chandramohan Reddy in Nellore and Dr. N. Sivaprasad with Mr. B. Gopalakrishna Reddy.

Mr. Bojjala Gopalakrishna Reddy, back in the Ministry after two

## Order amending police service rules issued

By Our Special Correspondent

HYDERABAD, NOV. 26. After a prolonged delay the State Government on Monday issued an order amending the service rules of Andhra Pradesh Police paving way for clearance of acceleratory promotions to personnel who have shown exemplary courage in fighting the extremist menace.

Sources said that the Government planned to approach the A.P. Administrative Tribunal for vacation of a stay order which it granted earlier on acceleratory promotions. The impasse over acceleratory promotions began after a batch of sub-inspectors challenged the process of acceleratory promotions pointing out that the acceleratory promotions were being given on mere Government orders while the service rules did not have any mention of it.

The Tribunal had issued a stay order on their petition and for the last 18 months all proposals for acceleratory promotions had been kept pending. Today's Government orders, sources said, would facilitate the promotion of several officers working in the extremist areas.

However, the promotion

HINDU 27/11/2001



**BOTTOMLINE:** EMPTY SILKWORM COCOONS ARE USED TO MAKE FABRIC

# APCO staffer shows the way to Ahimsa silk

BV Mahalakshmi

SOME years ago, film actress Amala Akkineni, who is now a leading Blue Cross activist, turned down a pure silk *salwar-kameez* gifted to her by the Andhra Pradesh Cooperative Society (APCO). The fault lay in neither the colour nor the design of the *salwar-kameez*, but in that the yarn for the cloth had been obtained after killing thousands of silkworms.

APCO's next customer was former president R Venkataraman's wife, who had to go back empty-handed because the cooperative society was not in a position to provide her with an 'Ahimsa' sari.

Ahimsa saris are eco-friendly silk saris. To understand why they

are called that, one must first know how silk is obtained from silkworms. The silkworms are fed with mulberry leaves by the farmer in the larval stage. When they enter the pupal stage, the silkworms secrete a fluid with which they cover themselves to form a yellow, ball-like cocoon. After their due gestation in the cocoons, the brand new moths pierce their way



through them and fly away.

Silk yarn is obtained by putting the cocoons, with the live worms still inside them, into boiling water so that the gum and thread moulded in the cocoon can be separated. Obviously, the worms are killed in this gruesome process. But now, Kusuma Rajaiah, a senior technical assistant at APCO, has developed a technique wherein the silk yarn is obtained after the moths

have flown the cocoon. The saris woven from this silk yarn are known as Ahimsa saris.

"The killing of thousands of innocent silkworms for the commercial benefit of making fabric is a sin," says Mr Rajaiah with great vehemence. "I collect pierced cocoons, which do not have moths inside them, and use the same technique for obtaining the yarn."

APCO obtains empty cocoons from Serifed. The only problem is that in the pierced cocoons, there is no continuity of the thread. Nevertheless, all kinds of silk saris -- Kanchipuram, Dharmavaram, Gadwal, Venkatagiri etc -- can be woven with Ahimsa silk.

Mr Rajaiah admits also that the

**Continued on Page 13**

FINANCIAL EXPRESS 5/2/2002



## APCO staffer shows way to Ahimsa silk

Continued from Page 1

process is expensive. "Out of 100 kilos of cocoons, I get only 16 kilos of yarn, and each kilo of yarn is charged Rs 1,000 by the spinning mill," he says. Normally, a good Kanchipuram or Dharmavaram sari weighs more than 700 grams. So, where a normal Kanchipuram sari would cost Rs 2,000-3,000, an Ahimsa Kanchipuram sari would cost Rs 4,500 and more.

"Though the (Ahimsa) saris are less shiny, their quality is not com-

promised," says Mr Rajaiah, displaying a maroon sari with a black border.

The National Institute of Fashion Technology in Hyderabad has evinced interest in the eco-friendly Ahimsa saris. "We are helping Mr Rajaiah reach leading brand manufacturers to establish a niche market," says NIFT director NVR Nathan.

Currently, however, Mr Rajaiah is busy, getting a patent for his ahimsa concept. ♦

## Gail to reposition itself as global infrastructure giant

Continued from Page 1

The share capital of the company stands at Rs 845 crore.

The company has already drawn up plans for globalising its operations through tie-ups with well-known market leaders and a change in the mindset of its employees through organisational restructuring with advice from CG and AT Kearney.

The organisational restructuring is high on the priority of the Gail management and will be carried out under two heads — 'Disha' (direction) and 'Parivartan' (change).

"Disha will focus on new corporate strategy and plans. It is for company's growth and about looking beyond where we are at present and the new areas which we would like to identify for expansion and diversification," said Mr Banerjee.

On the other hand, 'Parivartan' is the change in the work culture and is aimed at injecting accountability in employees. "It is about transforming the mindset of 3313 employees through various workshops, thereby helping them to anticipate changes, identify road blocs and find solutions themselves." ♦

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# Silk, the non-violent way

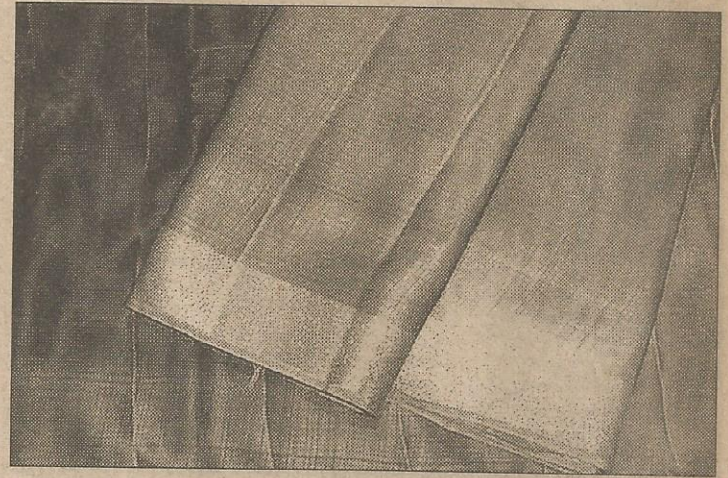
**Archana Raghuram**  
Times News Network

Have you given up on wearing silk because of the the cruelty involved in procuring and weaving of the fabric? Then there is good news. You can now enjoy the texture of the yarns without feeling guilty.

Hyderabad Times catches up with Rajaiah, an innovative entrepreneur who is behind a fabric called 'Ahimsa' silk. A diploma holder from the Indian Institute of Handloom Technology, he has been employed with APCO for the last 22 years. His penchant for creating something unique with fabric, made him experiment with tie and dye in wool, which finally made its way to Ludhiana.

His invention of 'Ahimsa' silk started when Janaki Venkatraman, the former first lady of India, wanted to buy some silk sarees from APCO, but insisted on buying silk that was created without cruelty to the worms. This concept sounded very interesting to Rajaiah, who always nurtured the desire to try out something new. His quest was strengthened when Amala Akkineni, film actress and social worker, asked the same thing of him at APCO.

That silk is woven from silk cocoons is common knowledge. These cocoons are made by a filament called 'fibroid' which oozes from the mouth of the silk worm, when fed with mulberry leaves. The silk worm is captured inside the filament. Farmers sell the 10-day old cocoons to traders, who, in turn, put

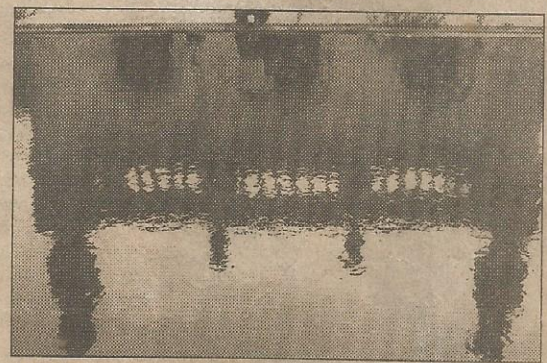
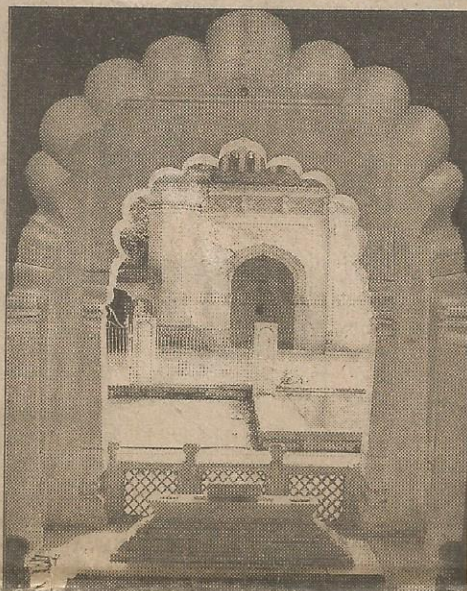


the cocoon in boiling water, when the worm is still in hibernation. Says Rajaiah, "Anyone who witnesses the worm fighting for life in the boiling water will never touch silk again!" With Ahimsa silk, the idea is to procure cocoons, where the silk worm is allowed to escape by making a hole in the cocoon. This involves a conscious and honest effort to segregate only such cocoons from the seeding units. Rajaiah first procured such cocoons from Pulamaneru in Chittoor district and then after great search, he found the Lohia group of mills in Chandigarh, who agreed to reluctantly weave it into silk. The difficulty with making Ahimsa silk is that, once the worm leaves the cocoon, the silk thread loses its continuity. In ordinary cases, a cocoon produces between 500-1500 metres of con-

tinuous silk thread. Whereas in the Ahimsa way, with 100 kg of cocoons, you'd get only 16 kgs of silk thread. This major loss in quantity is what makes the Ahimsa sarees and *angavastrams* expensive. A saree costs approximately Rs 5000 and more while an *angavastram*, Rs 1000. Rajaiah has not yet tested the waters of the market and has had only exclusive clientele till now.

He is not in favour of too much commercialisation, as he feels that the sarees may lose their soul then. It has taken him almost 10 months to produce 30 sarees. Says Rajaiah, "Only one who believes and practices the concept of '*Ahimsa paramo dharmaha*' will be able to understand and encourage the immense effort and involvement behind such a venture."

## TOMBS WITH A VIEW



## PROCESS

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(The writer is a new age guru)

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Maharashtra Pollution Control Board records also show why a glassful of water from Mahim is crawling with germs. "About 1,000 million litres sewage flows into Mahim Creek daily," said Dilip Borkar, member-secretary, MPCB.

Mumbai's misplaced faith kept Satish Shetye, director of National Institute of Oceanography (NIO), Goa, awake all night

drinking a mouthful.

Shah Jahan Sheikh was also there with her 11-year-old crippled daughter Shabana. Doctors have given up on Shabana, who hasn't been able to walk in four years now. Like the thousands who returned home "blessed" by the sweet sea, Shah Jahan, too, saw hope floating—in the murky waters of Mahim Creek.



HINDUSTAN TIMES 19/8/2006

# Weave of peace: Pioneer spins, moths fly free

RASHMI Saksena  
Hyderabad, August 19

THE WEAVE has been redefined after 60 years of independence. Mahatma Gandhi spun "non-violence" in khadi on his homegrown wooden *charka*.

Kusuma Rajaiah — a handloom technologist with the Andhra Pradesh State Handloom Weavers' Co-operative Society — is spinning Ahimsa on silk. The fabric, unlike the conventional silk, is spun without killing the silkworm inside the mulberry cocoon.

Rajaiah was awarded a patent for the Ahimsa silk this June.

The process, which "does not involve slaughter of any living organism", allows the moth to fly away before boiling cocoons for reeling silk. Rajaiah had to wait for four years to get his brand patented under the Intellectual Property Rights on eco-friendly method of manufacturing mulberry silk (Bombyx Mori) yarn.

He is now perhaps the only one in the world with the right to produce, sell and import silk woven in this "innovative" method.

Soon after getting a patent, Rajaiah pooled in Rs 2 lakh to buy 40 kg of cocoons. In a month's time, he hopes to produce 3,000 to 4,000 metres of silk without killing a single moth. He is waiting for the registration of 'Ahimsa silk'.

Rajaiah works from home in Hyderabad and manages to fill up 15 huge baskets on an average everyday. It takes 10 days for the moth to emerge from the cocoon, which are then taken to a spinning mill in Chhattisgarh and "softened up" to resemble cotton balls. They are then combed and spun into a fine yarn of "210/2 to 250/2 count".

Though Rajaiah's innovation spares the worm a "brutal death", it costs more than the conventional method. Under the traditional method, a single cocoon yields nearly 500 metres of shimmering yarn in filament form, whereas the non-violent

## A GOSSAMER GANDHIAN DREAM



Mahatma Gandhi preached non-violence and "Khadi". Nearly 60 years later, the texture of non-violence has become finer — silky. Ahimsa silk is gradually finding its way into the wardrobes of the discerning and the pious. Like Sheila Dixit, former Indonesian President Megawati Sukarnoputri, Sri Sri Ravishankar....

### WHAT IS AHIMSA SILK?

It is one of the finest quality silk extracted from mulberry cocoons without killing the silkworms inside. With a fibre count of 210/2 to 250/2, it is eco-friendly and acceptable to connoisseurs and Gandhians alike.

### SPINNING A YARN

#### CONVENTIONAL METHOD

**Step 1:** Farmers sell cocoons (by weight) and reelers purchase it  
**Step 2:** They are poured into boiling water so that the worms die and the filament can be extracted  
**Step 3:** The cocoons are boiled for 15-20 minutes before reeling.  
**Fibre quality:** Very fine and shining. 90 per cent silk can be extracted from the cocoon. The filament is measured in denier (20-22D).

#### NON-VIOLENT PROCESS

**Step 1:** The cocoons are spread in a basket after being purchased  
**Step 2:** Left for 8 to 10 days  
**Step 3:** After which the moths start piercing the cocoon and come out.  
**Step 4:** The moths are put in another basket, but are not killed. They females die a natural death after laying eggs the day after and the males after two-three days. The pierced cocoons are boiled and reeled.  
**Quality:** The fibre resembles tufts of cotton, but is as fine — if not as lustrous — as conventional silk.  
**Weaver:** Kusuma Rajaiah, a technologist with the AP State Handloom Weavers Co-operative Society.



method produces 60-70 metres of yarn, less shining and discontinuous. Hence, it has to be hand-woven or mill spun. The silk, though more expensive, is "sweat-absorbent".

The "couture-conscious" love it. Delhi chief minister Sheila Dixit has one in her wardrobe, while former Indonesian President Megawati Sukarnoputri have six, picked up by her personal assistant. And the spiri-

tualists are lapping it up. A disciple of Sri Sri Ravi Shankar presented him two *angavastrams* made from the fabric, while followers of Kanchi mutt, who traditionally shun silk because it involves killing the worm, have opened their arms to it.

The "orthodox" Jains are buying it for their annual religious festival at the temple town of Palitana in Gujarat.





# Employee of APCO gets patent for 'Ahimsa silk'

By V Srinivas Ram/TNN

**Hyderabad:** Did you know that nearly 40,000 to 50,000 silkworms are killed to make one silk saree?

But now, a Hyderabad resident has got the Indian patent for the 'Ahimsa' or the 'peace silk' which does away with the brutal practices involved in silk production.

Kusuma Rajaiah, a senior technical assistant with the Andhra Pradesh State Handloom Weavers Cooperative Society (APCO), had conducted a lot of research activities in the field of silk production in 2001 and had come up with a novel technique of producing silk in a 'non-violent' manner. But he got the Indian patent from the patent office in Chennai only last month. Now, Rajaiah wants to begin the production of 'peace silk'.

In the traditional method, silk cocoons are put in boiling water to kill the worm inside.

This is done as it is believed that the best silk is available at this stage of the worm's life. What makes the Ahimsa technique different is that cocoons are stored for 10 days in bamboo baskets. Once the worm steps in to the moth stage, it breaks open the cocoon and escapes. However, silk in the form of cotton swabs is left behind in the cocoon.

"So many worms die in this process. So, I really wanted to develop a technique which could save the lives of millions of silk worms," said Rajaiah.

It took some time for Rajaiah to get the patent for the peace silk as he had applied for a patent only in 2002. The patents bill, 2005 did not help him much as the focus then was clearing all the pending patent applications. In fact, while the gazette notification for the patent was issued in

**HMWS&SB Lok Adalat postponed:** The Hyderabad Metropolitan Water Supply and Sewerage Board's (HMWS&SB) Lok Adalat which was scheduled to be held on July 15 has been tentatively postponed to August 5, according to official sources. TNN



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worms," said Rajaiah.

It took some time for Rajaiah to get the patent for the peace silk as he had applied for a patent only in 2002. The patents bill, 2005 did not help him much as the focus then was clearing all the pending patent applications. In fact, while the gazette notification for the patent was issued in July 2005, he only received it in June. He, however, has no plans to get the international patent for peace silk in the near future.

The amount of silk generated from the Ahimsa technique is nearly 6 times less than that obtained from the traditional methods. The peace silk has its own advantages too. It is more soft, absorbs sweat and is wrinkle free.

Though Rajaiah feels that all silk manufacturers may not adopt the Ahimsa technique, even if a few do so, it could save the lives of many silkworms.



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# Wrap yourself in Ahimsa silk

By K RAKA SUDHAKARA RAO

Vijayawada, April 17: Former Indonesian president Megawati Sukarnoputri owns one! So does new age guru Sri Sri Ravisankar!! Ditto with foreign secretary Shyam Saran and seer Ganapathi Satchidananda. 'Ahimsa Silk', made without killing the worms is already making waves and animal rights activists Maneka Gandhi and Amala would not mind flaunting this silk saree.

Developed by APCO's Hyderabad-based technical officer Kusuma Rajaiah, the 'non-violent' silk does not use the yarn produced by killing cocooned silkworms by putting them in boiling water. Instead, the left-over cocoons

## TECHNOLOGICAL INNOVATIONS

after the liberation of the butterfly are treated with detergent-like chemicals to make it dissolve into a blob of cotton. The yarn is spun out either manually or mechanically to make silk fibre. The fibre is then used to weave a silk saree.

The process, no doubt, is more laborious and costlier. In fact, it takes 100 kg of cocoons to produce up to 15 kg of yarn.

At least 500 metres of silk yarn can be produced by boiling one single cocoon. In Rajaiah's



method, the yarn yield is only 15 per cent.

"But, there are several people who refuse to wear silk clothes because it involves killing of silkworms. The Kanchi seer, in fact, is

running a campaign against using of silk clothes as it involves violence.

The 'Ahimsa Silk' will allow them to wear silk clothes without compromising on their principles," said Rajaiah.

"Rajaiah's innovation has been received with much enthusiasm. Even the handloom commissioner was surprised to know that silk could be made without killing worms," said APCO vice-president and managing director YS Prasad.

"More research and development is needed to bring down the production cost and to make the Ahimsa Silk not just a collector's item," said Rajaiah.



# Ahimsa silk a big hit with big shots

Rashmi Saksena  
New Delhi, August 18

NO ONE is dying for a yard of this silk, except the die-hard supporters of non-violence. 'Ahimsa' silk, produced without killing the silk worm in the mulberry cocoon, is finding its way slowly but surely into the wardrobes of high profile politicians and religious gurus.

If Sonia Gandhi is spotted in a white and grey-bordered sari, chances are that it is Ahimsa silk. Delhi CM Sheila Dixit has two of them while former Indonesian President Megawati Soekarnoputri bought six chosen by her personal designer. A disciple of Sri Sri Ravi Shankar has presented

him with two *angavastrams* made of this fabric. The personal assistant of Swami Ganapathi Sachidananda of Karnataka has ordered two *dhotis* and eight *angavastrams* in myriad hues. Popular Telegu cine star Amala Akkineni became the first buyer of Ahimsa silk when she picked up a red and white sari. Followers of the Kanchi Math who have so far shunned silk because it is traditionally produced by boiling the cocoon and killing the moth inside, are accepting the fab-



DURGA

ric in a big way thanks to the innovation. Orthodox Jains too are buying the silk for their annual religious festival held at the temple town of Palitana in Gujarat.

Kusuma Rajaiah, a handloom technologist with the Andhra Pradesh State Handloom Weavers Co-operative Society, was this

June given a patent for the production of silk by a process in which the moth inside a mulberry cocoon is allowed to fly out before the cocoon is spun into silk yarn.

After a wait of four years, Rajaiah was awarded the patent under the Intellectual Property Rights on Eco-friendly Method of Manufacturing Mulberry silk (*Bombyx Mori*) yarn making him the only one in the world with the right to produce, sell and import silk made by this innovative method.

Right after getting a patent, Rajaiah bought 40 kg of cocoons for Rs 2 lakh. In one month's time he hopes to produce 3,000 to 4,000 metres of silk without killing even one moth. Rajaiah's innovation will be less cruel but it makes the product more costly. The traditional method gives from each cocoon about 500 metres of silk yarn but the non-violent method yields only 60-70 metres.

BRATS' DAY OUT

HINDU STAN TIMES 19/8/2006



சென்னை நகரில்...  
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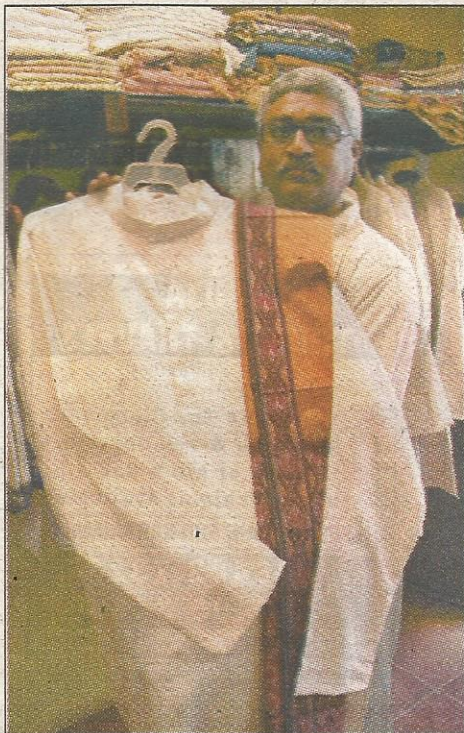
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## 'Ahimsa' silk kurtas, fabric

An exhibition of eco-friendly silk, better known as 'ahimsa' silk is on at Yaan boutique in Abhiramapuram.

On sale are dhotis, saris, stoles, kurtas and T-shirts in natural colours, neck-ties and fabric made of 'ahimsa' silk.

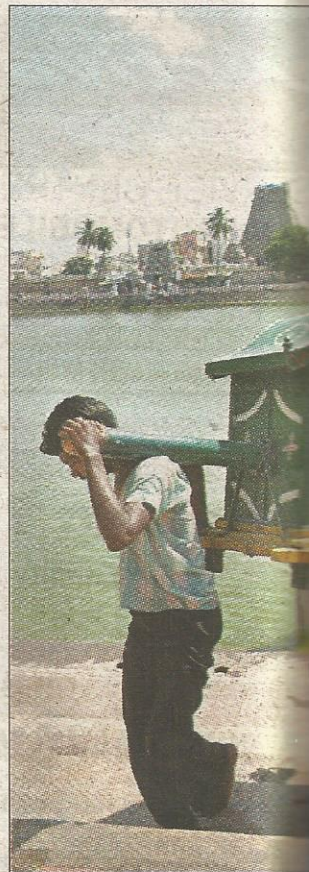
Unlike the conventional method used in the silk industry where cocoons are destroyed by dropping them in boiling water, 'ahimsa' silk is produced from those cocoons that have been pierced at one end naturally by the moth while emerging out of the cocoon.

Kusuma Rajaiah, a senior technical officer at Andhra Pradesh Handloom Weavers Co-operative Society holds the patent for producing this eco-friendly silk at his home based venture in Hyderabad.

'Ahimsa' silk may not be as shiny as regular silk but is wrinkle free, has better drapability and is comfortable to wear.

Aruna Rao who runs Yaan boutique is hosting the sale which is on till Feb.17.

For details call Aruna Rao at 9382254685. The shop is at 1, Janaki Avenue, 4th Street, Abhiramapuram.



## Bharatanatyam and Japanese dance



On the occasion of Ra...  
on February 13 at Sri...



his coronation), he was instrumental in shifting the Indian capital from Calcutta to Delhi. When he was crowned, the (then) Black Town area in Chennai was renamed George Town.

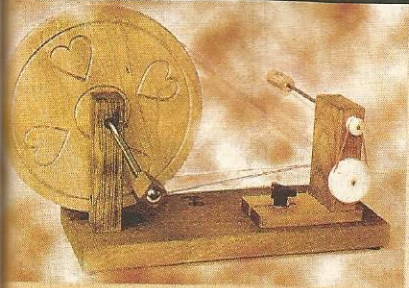
**The statues:** Curiously, there is not one, but two statues of King George V in the city - he is the only member of the British royal family to enjoy this 'privilege'. The one at Pachaiyappa's Corner (as it was earlier

donated Rs45,000 to erect this statue, which was unveiled in 1914. The second statue of King George V, now standing just before the War Memorial was erected with public subscriptions, and was unveiled by Lord Erskine, Governor of Madras on January 31st, 1939. The sculptor was Rao Bahadur MS Nagappa, father of sculptor Mani Nagappa. The statue was presented to the King on

has a strange connection with the statue of King George V, the one at George Town. It is said that there was a competition to compose a welcome song on the King's arrival in India and thus came the 'Mangalam' on King George V. Poochi Viswanadha Iyengar, one of the doyens of carnatic music has also put down a composition on the King, which was sung when this statue was unveiled in 1914.



THIRD EYE



>> **FABRIC FUNDAS** | *neeti jaychander*

# Silk - the Gandhi way

**A**nimal lovers have a reason to smile! Ahimsa silk, which essentially refers to silk that is made without killing the silkworm, is slowly creating a buzz in the country. This fabric has been patented by Kusuma Rajaiah, who claims his inspiration was, of course, Mahathma Gandhi. "In fact, it was he who stated to the silk industry that silk should be made without killing the silkworm," says Rajaiah, adding, "I also greatly admire Janaki Venkataraman, (the wife of former President of India, R Venkataraman) and Smt Amala Akkineni who asked for saris to be made without killing silkworms."

Although Rajaiah is professionally a Technical Officer with the Andhra Pradesh

Handloom Weavers Cooperative Society (APCO), he embarked on research for alternate silk production, and after a whole year, finally hit upon how to produce Ahimsa silk commercially.

"We purchase live cocoons, spread them over in a big open bamboo basket and wait for a week-10 days," he explains, "After the moth comes out, the cocoons are collected and softened. The softened fibre is spun in the required yarn and then made into a sari or any other garment."

While regular silk is in filament form, with lustre, Rajaiah tells us that Ahimsa silk is in spun form, with lesser shine, but is soft, enduring and more comfortable, with good sweat absorption properties.

"The market for Ahimsa silk is

catching up slowly, especially among animal lovers, Jain groups, eco friendly people, etc," enthuses Rajaiah, "People are also more aware about the violence behind silk production." He admits though, that it is a trifle more expensive than the regular silk, because of the increased wastage while extraction. The wastage in Ahimsa silk is about 85%."

Rajaiah's future plans include more research in 'wild silks' like Muga, Eri, and Tussar, and he's also aiming for a worldwide patent! In the meantime, Ahimsa silk is currently available only in Kusuma's residence in Hyderabad. However, an exhibition is being held in Chennai from tomorrow until July 16th at Yaan, Abhiramapuram. More details on 040- 27032112 or 09989392461.

A NEW, PATENTED FABRIC, THE AHIMSA SILK, IS MADE IN TRUE GANDHIAN-STYLE WITHOUT KILLING THE SILKWORM. A LOOK AT THE MATERIAL, WHICH IS CREATING WAVES IN THE COUNTRY

ET - 12/7/2007



Every Monday with The New Indian Express

**EXCEL**  
OPPORTUNITIES UNLIMITED



# BUSINESS EXPRESS

The New Indian Express, Hyderabad ♦ Wednesday June 18, 2003 ♦ Page 11

Every Monday with

**EX**  
OPPOR

## Wear an Ahimsa saree, save 50,000 silk worms!

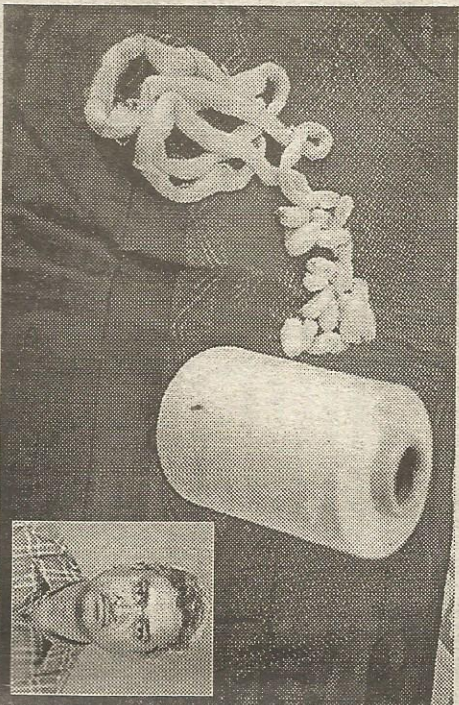
By SAHANA SUBHAKARAN

**Hyderabad, June 17:** When the former First Lady Janaki Venkatraman visited an APCO showroom in the 90s at Hyderabad, she was disappointed as the showroom could not provide her with a cruelty-free silk saree. This was followed by the Blue Cross activist Amala Akhmenti, who was turned away by the APCO people as she wanted a custom-designed ahimsa saree for a dance performance in Australia.

These two incidents were etched deeply in the mind of Kusuma Rajalah, an APCO (Andhra Pradesh Handloom Weavers' cooperative Society) employee. Stumped by these requests, it took a lot of perseverance and time for Rajalah to design a fabric, untroubled by suffering and

death of the silk worm for the first time.

To know more about the environment-friendly silk sarees one must know how it is produced and the life cycle of the little creature sacrificed for each strand. Generally, silk is woven from the cocoons produced by silk worms. These silk worms are put in a basket and are fed with mulberry leaves. After a few days cocoons are formed around the silk worms and they get arrested in the cocoons. Farmers sell the 10-day old cocoons to traders, who in turn, put these in boiling water, when the worm is still in hibernation, and thereby start the gruesome process of silk extraction. After this tortuous process, called reeling, the process of reeling, which brings out yards and yards of filament.



Rajalah (inset) with silk cocoons and reeled silk

In contrast, Ahimsa uses a different route to extract silk from the cocoons from which the worm had already escaped. These silks are of the highest

quality and the process involved is a laborious one and requires many more cocoons than regular silk needs. Added to it, it is slightly more expensive but in

no other way does it look or feel different, opines Rajalah. A single worm will produce approximately about 1,000 to 1,500 yards of silk thread and for a normal 5.5 metre silk saree, roughly about 50,000 worms are sacrificed. The difficulty in making Ahimsa silk is that once the worms are let free the continuity of the threads are lost. Non-violence yields 16 kg silk from 100 kgs of cocoons, while the violent route gives much more.

Rajalah's first customer was Amala and he was fully geared to venture into this field. He started production on a small scale in 2001 and adds that there is little possibility for bulk production as huge money is involved. He is not in favour of much commercialisation and is trying hard to market these at TTD centers for ahimsa angavastrams.

Rajalah's high profile customers include the Indonesian President Megawati Sukarnoputri, when she visited a Buyer-Seller Meet in 2002 in Indonesia. As word of mouth keeps spreading, Ahimsa silks had also found buyers overseas and plans are afoot to market it in a large scale on firm and bulk orders.

National Institute of Fashion Technology has been a source of encouragement for Rajalah and giving him all support.

Says Rajalah, "as silk has obtained a status symbol, we can not ask people to do away with it. One saree uses up to 50,000 dead creatures. If life is the same in all, then how stringent it is to wear the skin of 50,000 murdered animals. And for those who understand the value of life, money is but a small thing to pay."



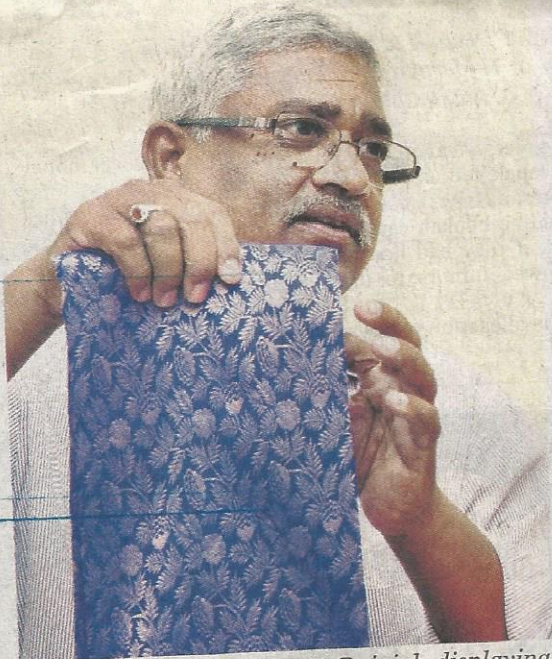
# Going global with Ahimsa Silk

Thread is made without killing the silkworm as part of the process

Syeda Farida

**HYDERABAD:** It was a request from the then first lady Janaki Venkataraman for 'Ahimsa Silk' that made handloom technologist Kusuma Rajaiah launch his brand of mulberry silk in 1992. By making silk thread without killing of the silkworm Rajaiah also felt he could fulfil a desire of Mahatma Gandhi. "Gandhiji had written to the Silk Board urging for the Ahimsa process to be followed in producing silk," says Mr. Rajaiah.

Today this message of the Mahatma through his Ahimsa silk medium has many takers in Germany, Israel, United Kingdom, United States and Europe. The jersey fabric, stoles and silk material are imported by leading designers across the world creating silhouettes for who's who. For instance, the pre Oscar gown for filmmaker James Cameron's wife was designed using Ahimsa silk. Wardrobes of royal families have Ahimsa silk in them. Megawati Sukarnoputri



**EXQUISITE WEAVE:** Kusuma Rajaiah displaying a sari made from 'Ahimsa Silk'.

- PHOTO: BALACHANDER GOUD R.K.

has been a patron of Ahimsa silk saris. Wendell Rodricks was among the few designers to come up with innovative lines for Gandhi Jayanti with his fabric. Unfortunately

there have not been as many takers for his saris, shawls and stoles in the twin cities.

Reason?

Ahimsa silk is soft, breathable and elegant

but is relatively muted when it comes to sheen.

## Not expensive

"People prefer fancy saris and heavy pattu silks available at shopping malls. Unlike these saris Ahimsa silk is not even expensive. It only costs 1 1/2 times more than the conventional silk. Recently the 'Kanchi peetham' urged devotees to avoid silk fabric as it involves killing of silkworms. Ahimsa silk can sure be an alternative," says Mr. Rajaiah hoping for a larger market back home for his fabric.

Over the years Mr. Rajaiah has been successful in the revival of the double Ikat peacock motifs of Nalgonda and the Jamdani style from Venkatagiri. Today the Dharmavaram saris from his weavers in Anantapur and silk dhotis from Peddapuram stand out for the drape. The silk and khadi warp and weft is a chic new age design from this APCO employee. "I will take up more research after retirement. I plan to come up with lightweight saris soon," he says.

Talk on

HINDU 11/7/2012



only a little market fish  
Grains and worm larvae from

The secret, say M. G. Venkate

Retaining old hatched roof  
metre boxes.

mae.martin@mailtoday.in

# Non-violence goes chic with Ahimsa silk

MAIL TODAY

**By Mridula Chunduri**  
in Hyderabad

**BEHIND** every Kanjeevaram saree lie the merciless deaths of about 6,000 silkworms. But there is a Gandhian way to dress in the best of silks.

Instead of making silk using the conventional method of boiling silkworms alive in their cocoons to extract the thread, Gandhian Kusuma Rajalah, a technical expert from Hyderabad proposed a more extensive albeit expensive way to obtain silk without killing worms.

Rajalah buys the worms in their cocoons from sericulture farmers and leaves them in a bamboo container for a week to 10 days. In this time, they crawl out of their cocoons by themselves. The empty cocoons are

boiled and processed to extract the fibre, from which the yarn is spun to make silk garments.

Not that the worms have a long life otherwise. They mate the day they emerge from their cocoons. The female lays about 300-400 eggs the next day and dies. The male's life does not last beyond the next five days.

But as Rajalah says, "At least we are letting them die their natural death and not killing them for our benefit."

Rajalah was first introduced to this concept in 1992 when the then first lady Janaki Venkatraman had, on a visit to Hyderabad, asked the Andhra Pradesh cooperatives if there was anyone who could make silk without killing the worms.

When actress and animal rights activist Amala Akkineni

also rejected a silk dress material saying she did not wear silk because worms were killed to make it, Rajalah, APCO's technical expert, took it up as a challenge.

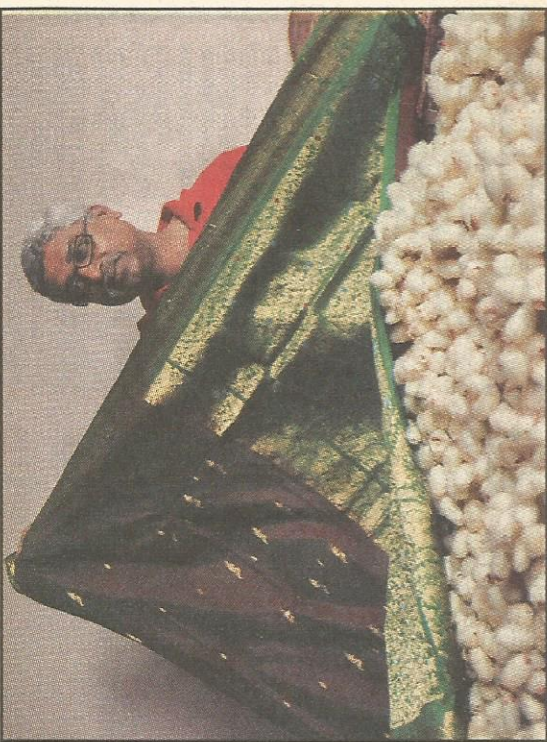
In 2000, he started considering the commercial viability of his Ahimsa Silk.

He applied for a patent in 2002 and by 2006 he became the manufacturer and patent holder of the eco-friendly Ahimsa silk.

"People would not consider this alternative to silk making because there is a lot of wastage. For a silk saree made from Ahimsa silk, I will need 15,000 worms as the fibre output comes down by nearly 80 per cent in this process. For a normal silk saree, we need only 6,000 cocoons," Rajalah says.

*mridula.chunduri*  
*@mailtoday.in*

**CONSCIOUS FASHION:** Rajalah displays an Ahimsa silk saree.



MAIL TODAY 25/2/2008







**PERPETUAL POTHOLES:** The Municipal authorities who continue to receive flak for not repairing the dug-up roads, began filling up the potholes near the rear gate of Gandhi Hospital with soil. But with the rain lashing the city on and off, the road stretch has now become a veritable mud track. - PHOTO: D GOPALAKRISHNA

president K. Suresh said over 200 types of Zoonoses were identified world over.

More than 200 people were being bitten by dogs in the city every day and 60 per cent of the victims were children below fifteen years.

A majority of these children were not being treated properly because their exposures go unreported to parents or to Health department officials.

With the city having over 1.5 lakh stray dogs, it was essential to have all the dogs vaccinated, Dr. Suresh said.

HINDU 5/7/2006

# 'Ahimsa' silk gets patent this year

## Kusuma Rajaiah develops an eco-friendly process

Staff Reporter

• Patent granted on May 10

• Rajaiah's experience spans across 26 years

• 'Ahimsa' silk experiment started in 2001

**HYDERABAD:** Kusuma Rajaiah crusader for 'Ahimsa' silk who had evolved a process for obtaining silk yarn without killing of silk worms, has been granted the patent for his creation.

The Controller of Patents granted the patent on May 10 this year to Rajaiah, a diploma-holder in handloom technology from Indian Institute of Handloom Technology. He has been with APCO for the past 26 years and at present is working as technical officer with the organisation.

for creating 'Ahimsa' silk in 2001 and obtained the yarn taken from pierced cocoons to let the live moth come out from the cocoons against the regular practice of reeling the yarn by throwing the live silk worm cocoons in boiling water.

### Killing of worms

Silk sarees and 'angavastrams' are worn by devotees as a custom during auspicious occasions unmindful of the fact that the fabric comes out of killing thousands of silk worms.

Rajaiah's work was applauded and recognised by spiritual heads and holy personalities.

Rajaiah realised it was in violation of 'ahimsa dharma' incorporated in directive principles of State policy.

His 'Ahimsa' silk was patented under eco-friendly method of manufacturing mulberry silk (*Bombyx Mori*) yarn under his name on May 10 this year. As per the Patent Act no third party can copy the process, or sell the product for a term of 20 years.

He vowed to work for developing an 'Ahimsa' silk. He evolved a method

## Meeting of archaka

### CORPORATION OF HYDERABAD

er, Division NO.7, MCH, Khairatabad, Hyderabad.

Dt:01-07-2006

the Registered Contractors with MCH with appropriate class of registration having suitable experience in the presence of tenderers or their authorised agents as per the details below.

of 1% EMD paid along tender in ur of Comm- er, MCH.	Cost of tender Schedules D.D. in favour of Commissioner MCH.	D.D. @12% Sales tax in Favour of CTO, Khaira tabad	Comple- tion period	Eligibility of Registered Contractors
	1000/-	120/-	2 Months	Class-III as per G.O.Ms. No.521 & Class V as per G.O.MS.No.94
	1000/-	120/-	2 Months	-do-
	1000/-	120/-	2 Months	-do-
	1000/-	120/-	2 Months	-do-
	1000/-	120/-	2 Months	-do-
	1000/-	120/-	2 Months	-do-
	1000/-	120/-	2 Months	Class-III as per G.O.Ms. No.521 & Class-V as per G.O.Ms.No.94 (Reserved for WLCCS)

\* Date of issue of Tender Schedules: 10-07-2006; The full details of rules and regulations of office hours on all working days, the procedure for finalizing the tenders will be as per the application for the tender schedules should be accompanied by the demand drafts towards the Drafts should be after the date of Tender Notice.

Sd/- Executive Engineer, Division No.7, (W.Z.), MCH.



July 17

Commodity-derivatives trading on global exchanges surged 44% last year as energy and metals prices rose to records, according to International Financial Services London.

About 878 million contracts were traded in 2005, more than double the level four years ago, the London-based company, which promotes the UK financial-services industry, said in a report on Monday. The report, written by senior economist Marko Maslakovic, didn't give a value for the contracts.



The notional value of banks' outstanding commodity derivatives traded outside of exchanges, also known as over-the-counter (OTC) contracts, more than doubled last

year to a record \$3.6 trillion. The gain was led mainly by gains in energy contracts, the report said. Growing demand from emerging economies whose economic growth averaged 8.8% in the past year combined with underinvestment in production, has spurred a rally in commodity prices in recent decades.

Pension funds and other institutional investors have been looking for ways to invest in commodities to tap gains that have outpaced stocks and bonds.

Copper has more than doubled in the past year, rising to

FINANCIAL EXPRESS 18/7/2006

# 'Ahimsa silk fabric', new way of manufacturing silk

**BV Mahalakshmi**  
Hyderabad, July 17

The Controller of Patents, Designs, Trademarks and Geographical Indications has granted patent for an eco-friendly method of manufacturing mulberry silk-worm yarn.

The patent has been granted for 20 years to Kusuma Rajaiah, hailing from Hanamkonda, in Warangal district of Andhra Pradesh. Rajaiah is a technical officer at the Andhra Pradesh Co-operative Society (APCO).

The yarn is called 'Ahimsa silk fabric', and is prepared without killing the silkworm. The process involves producing yarn without putting the silkworms in boiling water. Instead, it uses left-over cocoons which are treated with chemicals and later dissolved.

Just a quick ride back to basics. Silk is commonly obtained from mulberry worms. The silkworms are fed with mulberry leaves in the larval stage.

Then, in the pupal stage, the silkworms secrete a fluid by which they cover themselves and form a cocoon.

After the gestation period, the moth opens and flies away. The yarn is produced when these cocoons are put into boiling water thus killing the moths. Obviously, a gruesome process, Rajaiah said.

His technology involves piercing the cocoon thus allowing the moth to fly through the hole. In fact, he collects those cocoons which do not have moths inside from Serifed.

Though he does not get continuity of yarn thereby causing breakages, it is slowly spun bringing together the breakages and made into a single thread. The process is certainly laborious, and of course reflects in the pricing of the final product.

Out of 100 kilos of cocoons, only 16 kilos were obtained and each kilo is being charged by the spinning unit. The cost per saree might cost about Rs 4,500 unlike the conventional ones ranging from Rs 2,000.

The quality is in fact soft and finer with the 'Ahimsa silk' compared to the usual silk.

Rajaiah, along with the National Institute of Fashion Technology will soon be commercialising the 'Ahimsa silk'.

This apart, the technical officer at the Andhra Pradesh Co-operative Society has plans to talk to fashion houses and big retail chains to store these kind of eco-friendly products as they are sold at a premium. Perhaps, this patent will get recognition and bring the concept of 'Ahimsa' fresh in the weaving industry.

TOP C



TOP GA

- Chana (Nov)
- Jeera (Jul)
- Mentha Oil (O)
- Gur (Sep)

TOP LI

- Ground Nut (F)
- Raw Jute (Oc)
- Guar Gum (S)
- Guar Seed (S)

TOP G

- Castor Seed (O)
- Mentha Oil (S)
- Jeera (Sep)

TOP I

- Potato (Oct)
- Rubber (Aug)
- Guar Seed (Se)
- Masur (Aug)

TOP GAINER

- Rubber (Oct)
- Cardamom (A)

FITURES



HINDU 22/4/2006

# Silken touch with 'Ahimsa silk'

## APCO technical official comes out with the new method

G. Ravikiran

**VIJAYAWADA:** How to wear silk without feeling guilty? 'Ahimsa silk' provides the answer. By dispensing with the conventional method of boiling the cocoons to extract the exquisite thread, it rekindles hopes in those who have stopped using silk because of its violent method of processing.

Silk producers kill the silkworm in the cocoon by boiling it in water and get the shining silk out of it.

Cocoons, which form a protective cover for insect larvae, are boiled just two to three days before the larvae can take wings and fly out of the shell.

The living larvae get killed inside the cocoons as extractors reap reels of glittering, fine silk to fetch them attractive price in the market.

- It allows insect to make hole in cocoon and come out of it
- Rajaiah gets inspiration from people's love for non-violence
- This silk is softer and finer when compared to the usual silk

But the likes of former First Lady Janaki Venkataraman and animal activists — Maneka Gandhi and Akkineni Amala — are conscious of this cruel method, and prefer to avoid using silk.

### Perfect alternative

For this section of peace-loving people, Ahimsa silk comes as an alternative to wear various colours of silk. The new method is all about non-violent way of manufacturing silk.

Kusuma Rajaiah, a technical offi-

cer with the Andhra Pradesh State Handloom Weavers' Cooperative Society (APCO), thought of the new formula after he came to know of the reluctance of Mrs. Venkataraman to wear commonly available silk.

He found a method by way of allowing the insect to make a hole in the cocoon and come out of it. It is only after that the silk filament will be made from the hollow cocoon.

But for various reasons, this causes breakages in the otherwise single thread of 500 yards length.

By carefully spinning them, the

breakages are brought together and made into a single thread.

### Patent expectations

Mr. Rajaiah filed for a patent and is expecting it shortly. The silk made in the 'ahimsa' way is softer and finer when compared to the usual silk. "I got inspiration from people's love for non-violence. If pushed properly, ahimsa silk will surely appeal to the good sense of everyone."

Mr. Rajaiah says. He made four sarees for the first time in 1990. In 2000, he made 100 kg of silk and the machine work was done at the factory of Lohia Group in Chattisgarh.

Mr. Rajaiah's alternative silk has now caught the attention of Development Commissioner of Handlooms under the Ministry of Textiles.

# Siemens invites industrialist for technology fair

Staff Reporter

**VIJAYAWADA:** City-based industrialist Malineni Narayana Prasad has received a rare honour in the form of an invitation from global electrical major Siemens for a five-day visit to Germany from April 23.

Mr. Prasad will visit Siemens's stall at Hanover Fair — the world's leading fair in technology and automation — and the company's factories at Amberg and Cham. The fair will be inaugurated by Prime Minister Manmohan Singh.

Mr. Prasad has received the hon-

our in recognition of his 30-year-long experience in electrical engineering, designing and consultancy.

His firm Narayana Prasad Electrical Works takes up electrical engineering and modernisation works for sugar, cement, paper and ceramic industries, besides hotels and hospitals. Mr. Prasad's firm uses various components of Siemens — latest switches, air circuit breakers and moulded case circuit breakers.

### Unique distinction

Though leading only a small scale industry 'Narayana Prasad Electrical

Works', Mr. Prasad has the credit of getting his firm's switch boards type-tested by the Central Power Research Institute (CPRI), Bangalore, for the first time in the history of the small scale sector in the country.

### Technological expertise

Mr. Prasad has acquired technological expertise in draw-out motor control centres and state-of-the-art switchboards, and his clients include KCP Sugars, Sarvaraya Sugars Ltd, Jeypore Sugars, Spartek and Madras Cements.

He has factories at Autonagar in

Vijayawada, and Gajuwaka near Visakhapatnam. The firm exports switchboards to Vietnam and Bangladesh.

Mr. Prasad has earlier received Jamnalal Bajaj National Award, conferred by the Council for Fair Business Protection for fair business practices, in 1997 and NACOSI-IHFD award for outstanding contribution to small industry movement.

More city, regional news on  
Pages 3, 4, 5 & 6





# Fabric of compassion

HINDU 6/3/2007

**OFFBEAT** It's silk but woven in a non-violent way. Read on to find out about Kusuma Rajaijah's brand of 'Ahimsa'

This is silk to gladden the heart of both the aesthete and the animal lover. Aptly named 'Ahimsa silk', the material is obtained through compassionate means. The silkworm when it turns into a moth, is allowed to break free from the cocoon and fly away. The swabs left behind are then spun into yarn. How many of us know that to make one silk sari through the usual process, 40,000 to 50,000 worms are destroyed, creatures that would otherwise live out their life cycle as butterflies and help in pollinating flowers and keeping the fields of farmers free of pests?

So one can understand why Kusuma Rajaijah feels a sense of deep fulfilment. He is the inventor of silk got through non-violent methods and his work affirms the spirit of an ancient philosophy that considers all creatures equally important in the web of creation.

## Bloodless revolution

While participating in an exhibition organised recently by the Crafts Council of India at the Lalit Kala Akademi, Rajaijah who is Technical Officer in the Andhra Pradesh Handloom Weavers' Cooperative So-

ciety (APCO) took time off from meeting customers at his stall to explain about his bloodless revolution in the cause of Nature and beauty.

It all began when Janaki Venkataraman, the wife of the former President of India, R. Venkataraman visited Hyderabad. She enquired of an officer of the APCO whether they had silk saris which did not involve the killing of the worms. "When actor Amala who is deeply involved with the activities of the Blue Cross also wanted to make a similar purchase, it accelerated my interest and I began doing research," says Rajaijah. "By 1992, I managed to produce two sample saris." In the conventional method of production, the worms which spin their cocoons out of silk thread to protect themselves from predators, are boiled alive just seven days short of freedom as it is believed that the silk is at the finest at this stage.

## Difficult to weave

"I encountered a few problems while making Ahimsa silk. Since the yarn is twisted and more elastic, it is difficult to weave. Also because it is finer yarn, it cannot be reeled and has to be machine spun. The Lo-



**BEAUTY SANS PAIN** An Kusuma Rajaijah with an array of Ahimsa silks

PHOTO: S. THANTHONI

nia Mills in Chattisgarh helped me in the production. Not everyone can weave this. I have identified weavers in Nalgonda district but the wages are higher than for normal silk. I

have to pay them Rs.1,000 per sari." Rajaijah has a range of 30 designs - Kanchipuram, Kalakshetra, Ikkat and Jamdhami - as also Kalamkari printed saris in beautiful, rich colours. He

also produces salwar kameez sets and stoles as well as dhotis with half fine zari since "pure zari also contains silk thread." The saris are available at a flat rate of Rs.4,600. "It is impossible

to bring down the cost further," he says, sounding a little crestfallen that even the elite customers turn away when told the price. Ahimsa silk does not wrinkle and is more comfortable to wear than the conventional one as it has more air permeability, points out Rajaijah who was recently given a patent for the invention of eco-friendly method of manufacturing mulberry silk yarn.

"Maneka Gandhi helped me a lot in the beginning," he says. Those who have purchased his silk include Amala, Megawati Sukarnoputri, Sheila Dixit, Ganapati Sachidanandaswamy and some Jain groups.

One of his best customers is Jennifer Yost from the U.S. who made a long dress for her wedding out of this fabric. "The news item and photograph appeared in the *New York Morning Star*," he informs you proudly.

"I have more enquiries from Mumbai and Chennai than from other cities," says Rajaijah whose wife supports him in this endeavour.

(e-mail:designer\_weaves@rediffmail.com or info@ahimsasilks.com, ph: 9989392461, 040-27032112)

KAUSALYA  
SANTHANAM



# TerraGreen

News to Save the Earth

Issue 12

15 May 2002

- Letter from the editor
- News of the fortnight
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## The long story

### ■ From a Cocoon, with Hope

By Suvira Srivastav

### ■ Beak for a beak

By Suvira Srivastav

### ■ From a Cocoon, with Hope

By Suvira Srivastav

*"Non-violence is not a cloistered virtue, confined only to the rishi and the cave dweller."*  
Mahatma Gandhi

The frail man who won India her freedom preached non-violence. Freedom was won for the country also by walking his talk. To Gandhi *ji* though, non-violence, or *ahimsa*, was a way of life. He wore '*ahimsa*' leather sandals and promoted '*ahimsa*' silk; the former made from the hide of cows that had died a natural death. He also hoped that the Indian silk industry would use only those cocoons whose worms had already matured into moths and flown out into the world, not boiled to death for the sake of the rich yarn known all over the world as a symbol of India.

Twelve years ago, the APCO (Andhra Pradesh Handloom Weavers' Cooperative Society) in Hyderabad first realized the value of *ahimsa* silk when its best silk had to be rushed to a high-profile visitor. Mrs Janaki Venkataraman, wife of the then President of India, Mr R Venkataraman, wanted to buy the beautiful silk but would do so only on one condition—the silk should have been woven without killing the silkworm before it turned into a moth.

Silk comes from silkworms, which are not true worms but the caterpillars of the silk moth, *Bombyx mori*. The baby silk moth eats only mulberry leaves and protects itself by spinning a silken material around itself, to form a cocoon. Typically, each worm produces 2.4 km of continuous thread.

When metamorphosis is complete and the moth is ready to leave its cocoon, it secretes an alkali that eats its way through the thread. For the silk industry, the alkali secretion stage must never be reached since it spoils the thread for spinning, as it is no longer continuous. To get good quality silk, the moth must be killed before it leaves the cocoon. This is achieved through heat treatment—either by suffocation with steam or by heating the cocoons in an oven. Only a small number necessary for breeding the next generation is allowed to complete the



allowed to complete the lifecycle. That is why, for the devout vegetarian, or for staunch followers of non-violence, the wearing of silk is a violation of their basic principles.

Stumped by the request, the APCO manager, a non-technical person, rushed to his technical assistant, Mr Kusuma Rajaiah, who confirmed that the process of procuring silk is a violent one. In fact, one silk saree can mean up to 50 000 dead silkworms. The irony is that the very cocoon, created by nature to safeguard the growing insect, is made up of the fine silk thread that can be spun into lustrous silk yarn. Just seven days before maturity, the cocoons are collected, put into heat chambers, and treated at 70 °C–90 °C for three to four hours, thus killing the insect and making the cocoon pliable for spinning.

It is unfortunate that an institution such as APCO was unaware of *ahimsa* silk. Over the decades, since Gandhi *ji* first promulgated the idea, there have been movements within the Khadi cottage industry and institutions such as Kalakshetra in Tamil Nadu to actually popularize this form of silk, where only those cocoons are used that have been discarded by the resident silkworm. At Kalakshetra, the traditional art and craft institution begun by the famous danseuse and activist Mrs Rukmini Devi Arundale, there is a half-a-century old weaving centre, which produces traditional Kalakshetra sarees in cotton and *ahimsa* silk.





Mr Rajaiah with his collection of Ahimsa sarees

The visits from of Mrs Venkataraman and animal activist and actress, Ms Amala Akkineni, became catalysts for change at APCO. Mr Rajaiah was inspired to try to make such *sarees* available for people to buy from the regular marketplace. It was a long decade for Mr Rajaiah, with a transfer to a district office thrown in when the work got relegated to the back burner. However, about a year ago, Mr Rajaiah got down to the serious business of working on an innovation that could ensure commercial production through a non-violent but expensive process.

As often seen with alternative methods that are eco-friendly, upfront costs and a lack of adaptability into the main infrastructure make such products fall heavy on budgets. Mr Rajaiah explains how it is easy to produce a single *saree* but mass production requires bulk procurement of the special cocoons. "The process was exhausting and it was only in January 2001 that I managed to purchase 105 kg of cocoons from the Sericulture Federation in Hyderabad." Funds were also a problem. Mr Rajaiah – by then fully devoted to the idea – withdrew Rs 85 000 from his Provident Fund and pumped in another Rs 40 000 from his savings. After much persuasion, the Indorama mills at Raipur, Chattisgarh agreed to spin this silk. At the end of all this labour, Mr Rajaiah was left holding just 16 kg of yarn, which was finally taken to Confident Weavers in Nalgonda district, Andhra Pradesh, where 30 samples of *ahimsa* silk *sarees* were ready for market trial.

Many experts from the textile industry supported the concept. Mr N V R Nathan, Director, NIFT (National Institute of Fashion Technology), Hyderabad, is one amongst them. He feels that "forbearance, compassion, a vegetarian diet, avoiding injury, and avoiding killing are the five concepts of *ahimsa*, or non-violence, and Rajaiah *sarees* fall under these principles". Even Mr Jayaramaiah, Deputy Director, Weavers Service Centre, Hyderabad, reiterates this, emphasizing, "*Ahimsa* silk is as good as any other silk, in quality".

Rajaiah is now obsessed with making *ahimsa* silk a commercially viable commodity. The well-known animal rights activist and India's Minister of State for Statistics and Programme Implementation, Ms Maneka Gandhi says, "Rajaiah has given a wonderful option to those who understand the value of life, and are always looking for non-violent products and options, untainted by suffering and death". Mr Rajaiah is now in the process of procuring 200 kg of silk cocoons to help him launch large-scale production .



Cocoons used by Rajaiah, after allowing the silkworm to escape

He has challenges to face. *Ahimsa* silk is costlier than ordinary silk, simply because when the moth leaves home, it punctures the cocoon and this breaks the silk thread. During the spinning process, cocoons without the moth lead to a lot of thread wastage. From an ordinary cocoon, 80% of the thread can be procured as yarn, but from an empty one, this goes down to an abysmal 16%. The finished *saree* reflects this cost and is one-and-a-half times costlier than a regular silk *saree*. "Too little a price to pay, as compared to what it saves," says Ms Gandhi. However, to make it accessible to the ordinary customer on the street, there is a need to work on not just bringing the cost down, but also on spreading awareness about the good deed s/he does by buying such a *saree*.



# Fabric of compassion

**OFFBEAT** Heard of a non-violent way of weaving silk? Ask Kusuma Rajaiah

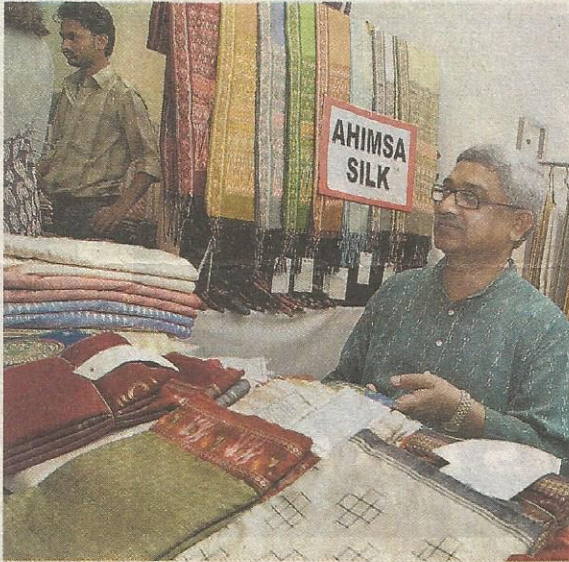
This is silk to gladden the heart of both the aesthete and the animal lover. Aply named 'Ahimsa silk', the material is obtained through compassionate means. The silkworm, when it turns into a moth, is allowed to break free from the cocoon and fly away. The swabs left behind are then spun into yarn. How many of us know that to make one silk sari through the usual process, 40,000 to 50,000 worms are destroyed, creatures that would otherwise live out their life cycle as butterflies and help in pollinating flowers and keeping the fields of farmers free of pests?

So one can understand why Kusuma Rajaiah feels a sense of deep fulfilment. He is the inventor of Ahimsa silk and his work affirms the spirit of an ancient philosophy that considers all creatures equally important in the web of creation.

## Bloodless revolution

While participating in an exhibition organised recently by the Crafts Council of India at the Lalit Kala Akademi, Rajaiah who is Technical Officer in the Andhra Pradesh Handloom Weavers' Cooperative Society (APCO) took time off from meeting customers at his stall to explain about his bloodless revolution in the cause of Nature and beauty.

It all began when Janaki Venkataraman, wife of the



**BEAUTY SANS PAIN** Kusuma Rajaiah with an array of Ahimsa silks PHOTO: S. THANTHONI

former President of India, R. Venkataraman, visited Hyderabad.

She enquired of an officer of the APCO whether they had silk saris which did not involve the killing of worms. "When actor Amala who is deeply involved with the activities of the Blue Cross also wanted to make a similar purchase, it accelerated my interest and I began doing research," says Rajaiah. "By 1992, I managed to produce two sample saris." In the conventional method of production, the worms which spin their cocoons out of silk thread to protect themselves from predators, are boiled alive just seven days short of

freedom as it is believed that the silk is at the finest at this stage.

"I encountered a few problems while making Ahimsa silk. Since the yarn is twisted and more elastic, it is difficult to weave. Also because it is finer yarn, it cannot be reeled and has to be machine spun. The Lohia Mills in Chattisgarh helped me in the production. Not everyone can weave this. I have identified weavers in Nalgonda District but the wages are higher than for normal silk. I have to pay them Rs.1,000 per sari." Rajaiah has a range of 30 designs — Kanchipuram, Kalakshetra, Ikkat and

Jamdhani — as also Kalamkari printed saris in beautiful, rich colours. He also produces salwar kameez sets and stoles as well as dhotis with half fine zari since "pure zari also contains silk thread." The saris are available at a flat rate of Rs.4,600. "It is impossible to bring down the cost further," he says, sounding a little crestfallen that even elite customers turn away when told the price. Ahimsa silk does not wrinkle and is more comfortable to wear than the conventional one as it has more air permeability, points out Rajaiah who was recently given a patent for inventing the eco-friendly method of manufacturing mulberry silk yarn.

"Maneka Gandhi helped me a lot in the beginning," he says. Those who have purchased his silk include Amala, Megawati Sukarnoputri, Sheila Dixit, Ganapati Sachidanandaswamy and some Jain groups.

One of his best customers is Jennifer Yost from the U.S. who made a long dress for her wedding out of this fabric. "The news item and photograph appeared in the *New York Morning Star*," he informs you proudly.

"I have more enquiries from Mumbai and Chennai than from other cities," says Rajaiah whose wife supports him in this endeavour.

(e-mail:designer\_weaves@rediffmail.com or info@ahimsasilks.com, ph:9989392461, 040-27032112.)

KAUSALYA SANTHANAM

HINDU



# state

● AHINSA SARI IN KANCHI

## Weaving a wonderful silk sari in Gandhian way

Dennis Selvan | ENS Kancheepuram, July 16

TYWO unique, first of its kind, eco-friendly saris made of silk yarn extracted from cocoons without killing the worm have made its way to Kancheepuram.

Christened "Ahinsa Sari", it is made involving a very complicated process known as 'eco-friendly method of manufacturing mulberry silk (Bombyx Mori) yarn' for which the Indian government had granted patent to Secunderabad-based Kusuma Rajalah on May 10, 2006.

Displaying the saris to me-diapersons here, B Gopinath, CEO of Arni-based SKP Silks Sarvee, said he had entered into an MoU with Kusuma Rajalah on July 13, 2010, for manufacturing Ahinsa silk saris for five years in TN and he is the only person to have entered into an agreement with the patent holder in the country.

Confirming this, Kusuma Rajalah, a Gandhian, told Ex-

press over phone from Secunderabad on Thursday that one more person from Mumbai sought him for signing a similar agreement, but "I refused because I was not fully satisfied with his terms." Money is not the motive, but eco-friendliness and a sense of satisfaction that we have not killed any silk worm in the process of making a sari was more important, Rajalah added.

He has nevertheless has entered into an agreement with a party in Thailand for manufacturing such saris with the 'non-violent raw material' exclusively exported by him.

On the face of it, one cannot, per se, easily make a difference between the conventional silk sari and what is now known as Ahinsa Silk, even though the latter would cost a few thousand rupees more, because of the intricate process it involves.

According to the MoU, Gopinath, who has his headquarters in Kancheepuram,



The silk saris made without killing the silk worms, costing (left to right) Rs 10,000 and Rs 16,000

would buy fresh cocoons from the first party Rajalah and the yarn would be separated after the worms fly off, may be after a period of two weeks of purchase. He said special care would be taken to search the cocoon for any

live worm before it is sent for spinning.

"It is too early to say anything, but our primary target audience would be the Jain community and anyone who has a proclivity to the concept of vegetarianism."

Deputy Director of Handlooms and Textiles Palanisamy told *Express* that such a sari was tried by the cooperative sector several years ago, but since such a method of making saris cannot cater to bulk orders, the

### The making of silk sari

Mulberry silk is made from the silkworms of the Bombyx mori moth which lays about 500 eggs before dying. The infinitesimal eggs are kept at 65 to 75 degrees Fahrenheit to hatch the eggs to give birth to silkworms. Feeding on mulberry leaves, silkworms increase 10,000 times in weight and gain enough energy to start spinning their cocoon. It then takes anywhere from three to as long as eight days for the silk worm to weave the cocoon.

idea did not take any further shape. Prior to the patent, the Ahinsa sari had been made with Mahatma Gandhi's image on it as a mark of respect to non-violence.

But this is the first time ever that the Ahinsa sari is made with pure zari, explained Gopinath.

## MK can suggest solution to Lankan

## Tamils issue: PM

Express News Service Chennai, July 16

REITERATING the UPA government's commitment towards arriving at a political solution to the ethnic issue in Sri Lanka, Prime

## 20,000 Tamil IDPs may opt to stay on in camps, claims official

## Express News Service Colombo, July 16

fected Wanni are yet to be cleared for cultivation. Roofing material promised by India has not reached

### CHANGE OF NAME

**M. RAMMOORTHY** son of **MUTHU UDAYAR** born on 13.2.1967 (native dist. Vellore) residing at 1/38, Big Street Alamelumangapuram, Vellore - 682009 shall henceforth be known as **M. RAMAMURTHY, M. RAMMOORTHY**

## TAMBARAM MUNICI PAL

### TENDER NOTICE

Roc. No. 4973/10/H1

The Commissioner, Tambaram Municipality invites bids for the collection of Solid Wastes including primary collection using bicycles and secondary necessary vehicles such as tipper, omnia, compactor, omnia in ward 1 yard designated by the Municipality. The bidders should submit their bids as a single package.

Bidding documents can be downloaded from the web site [www.tmbm.gov.in](http://www.tmbm.gov.in) before up to 4pm on 2.8.10

Bidders are requested to submit their bids through online e tender authority using their Digital signature (e-collom) with document order consisting of technical bid and financial bid on or before upto 3 pm on 2.8.10. The technical bids will be opened on 3.8.10 at 3.30 pm. In the

## KUMBakon VICTIMS RE



Students paying tributes to 10 on Friday

Express News Service Thanjavur, July 16

CANDLE vigils, floral tributes and procession marked the sixth anniversary of the Kumbakonam fire tragedy, which claimed 94 lives in 2004. Minister for Cooperation Ko S. Mani visited the memorial park constructed for the victim and paid homage. Leader and cadre of various political parties including AIADMK, Congress, CPI and CPM, offered floral tributes. The bereaved parents



# ressso

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## In his own league

### THE EXPLORER

From a super-loaded producer to a skilled actor, Ganesh has made a smooth transition. Uma Kannan spends time with the prankster

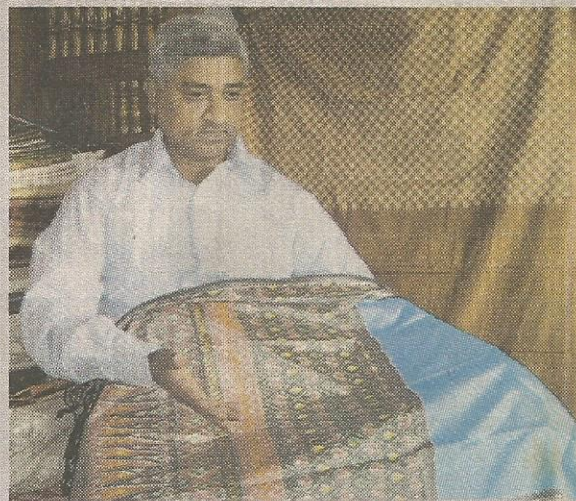
HE was just like any other producer until the release of *Vinnaihandi Varuvaya*. Its release, Ganesh is now 'Ganesh' and people have started recognising him as a star, who attracted the audience's attention through his unique voice and timely humour. With *VTV* came fame for Ganesh. He has now moved to the next level with his production house—VTV Productions, where he is producing the Simbu film *Vaanam*, a remake of the Telugu flick *Vedam*. "I have been in production for more than 13 years now and my vision is producing films," says Ganesh in his trademark style. How did *Vaanam* happen? "Simbu and I were watching the first day, first show of *Vedam*, at Casino theatre. We were both impressed with the film and immediately decided to make it. I'm so thankful to the producer for giving the dates. Cinematographer Nirav Shah and director Yuvan Shankar have been roped in and it's a long team," adds Ganesh. He is famous for his boyish charm and the pranks that he plays on the sets. Ganesh feels that a good production of technicians is

Bharath, Prakash Raj, Anushka, Sneha Ullal and a new face from Delhi, Jasmine. It's no wonder that Ganesh has named his production house VTV—as *Vinnaihandi Varuvaya* was his claim to fame. Ganesh says, "VTV also has two Vs which stands for victory." The producer has branched out from Gautham Menon's team but the two remain close friends.

"We're planning a Diwali release for *Vaanam*. The audio of *Vaanam* is coming out well. We're planning to finish Simbu's portion before he heads to London for *Podu Podu*. Nowadays, the script plays a pivotal role in the success of a film. I'm looking for a big banner to release the film," says Ganesh.

Is he acting in *Vaanam*? "Yes I play a cameo role. After *VTV*, I got a number of offers but I was quite hesitant. My role in *VTV* was just an accident. Simbu and I were talking casually, Gautham noticed it and asked me to do the role and that's how it happened. Each one has a different voice and my voice clicked," quips Ganesh.

Coming back to *Vaanam*, Ganesh says, "I've so much confidence on *Vedam*'s director Krish, who is also directing its Tamil version," says Ganesh.



## SILK GOES GANDHIAN



### AHIMSA

Kusuma Rajaiah is the man behind the *ahimsa* process of making silk. The lustrous saris are making waves across the globe. Dennis Selvan takes a closer look

MAHATMA Gandhi would have been pleased to present the *Ahimsa Sari* to his musical muse MS Subbulakshmi. Mahatma's *Ahimsa* theme was once again reinforced in Andhra-based Kusuma Rajaiah's patent-winning *Ahimsa Silk Saris*. The saris are woven through a complex

process. Indonesia's former president Megawati Sukarnoputri's in 2002. Rajaiah was representing APCO when the Indian government held an exhibition at Jakarta and one such *Ahimsa sari* was presented to the Indonesian president as a gift from India. Thrilled at the lustre and softness of the sari, Megawati chose five

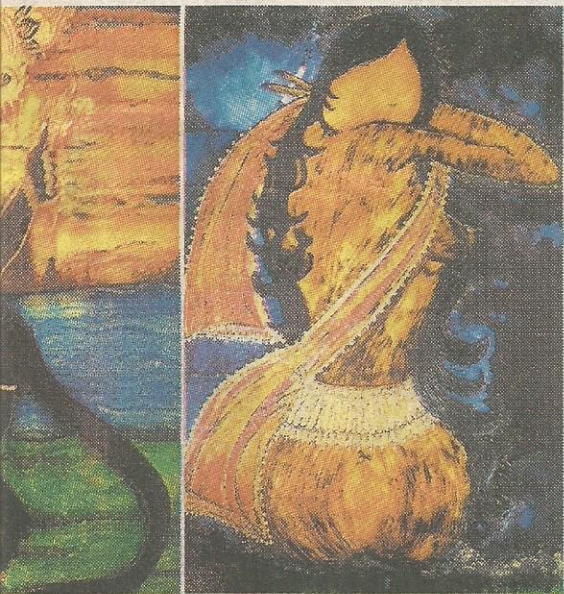


...ntial for the success of a who is looking forward to the  
 . The film also stars release of *Vaanam*.

My role in *VTV* was an accident. Simbu and I were talking casually, Gautham noticed it and asked me to do the role

# H GLASS

and realism. Anula Aboobacker  
 ex layers of creativity



Pix: S Kamalakannan

...ls are so accurate  
 e one could mistake  
 ing. "I get orders to  
 s it is pretty chal-  
 ing to bring accu-  
 e features on a sur-  
 ce like glass," she  
 dmits.

Poojitha has done hundreds of work which today find their homes in different parts of the world. "I never duplicate my work. If you buy from me you can be rest assured that you hold an exclusive," she promises. By sheer dint of craftsmanship and creativity she has given a new dimension to glass painting. To check out her collection visit [www.nayantarra.com](http://www.nayantarra.com)



...cated process known as 'eco-  
 friendly method of manu-  
 facturing mulberry silk yarn'.

*Ahimsa* silk was once again in the news when *Avatar* director James Cameron's current wife Suzy Amis wore an 'Avatar blue' gown made from *Ahimsa* silk at

more saris from an assort-  
 ment of about 30 of them  
 recalled Rajaiah.

For the uninitiated, silk-  
 worms are placed in bamboo  
 baskets and fed mulberry  
 leaves. As they consume the  
 leaves, they exude viscous  
 fluids through head glands.  
 These substances known as  
 fibroin (raw silk) and sericin  
 (bonding gum) harden upon  
 contact with air forming ba-  
 sic silk filament which is a  
 combination of two fibres  
 held together by the gum.  
 But the worm is still alive  
 inside the cocoon. And the  
 silk is extracted after the  
 silkworm has completed the  
 metamorphosis and allowed  
 to fly out of the cocoon.

Mulberry silk is made from the silkworms of the *Bombyx mori* moth which lays about 500 eggs before dying. Feeding on mulberry leaves, silkworms increase 10,000 times in weight and gain enough energy to start spinning their cocoon. It then takes anywhere from three to eight days for the silk worm to weave the cocoon.

the 2010 Oscars. It was then reported that while his ex-wife Kathryn Bigelow scored over him as the best director, it was his current wife who saved the day winning accolades for her flowing blue *Ahimsa* silk gown, designed by the young Jillian Granz.

Hailed as the 'saviour of silk worms' in his home town, Kusuma Rajaiah, a technocrat in handloom technology, and currently a procurement officer with Andhra Pradesh Trade and Handloom Weavers Cooperative Society Ltd (APCO) said that he had already sold five *Ahimsa* silk saris to In-

The first two saris to the Indian commercial market was introduced by B Gopinath, Kancheepuram-based CEO of Arni-based SKP Silks Sarees, who entered into an MoU with Kusuma Rajaiah for mass production of *Ahimsa* silk saris for five years in Tamil Nadu.

On the face of it, one cannot easily differentiate between the conventional silk sari and the *Ahimsa* Silk, even though the latter would cost a few thousand rupees more, because of the intricate process it involves. Gopinath says, "Our primary target groups would be the Jain community and anyone who has a proclivity to the concept of vegetarianism."

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community newsletters. "The mobile phone is the fastest growing medium of communication in India. It's very accessible — it can be used by just about anyone, even an unemployed boy in a village.

charges your local carrier, he says. "SMS about a sale to your database," he points out. The scheme, he says, has already been used to bring change: a village in Satara

Life has become a lot more exciting over the last nine months. "I used to send my friends pointless SMSes. I never thought it could be used for something construc-

women. "Once the cell phone reaches the village woman, we will be able to create massive social change," he says. riddhi.shah@hindustantimes.com

12/10/2008 **The silky way — without the guilt**

**HINDU SHANU TIMES**

**For the non-violent, ahimsa silk is a great way to drape themselves**

**Mini Pant Zachariah**  
Mumbai

Two months ago, when Sumathi Balasubramaniam's son was to be married, the retired teacher from Powai faced that universal problem: what would she wear? For Balasubramaniam, the option of buying an exotic silk sari does not exist. She had given up wearing silk some 20 years ago when she learnt that the sari she loved to drape was made by killing 10,000 silkworms. "We are followers of Sankaracharya and the idea of causing harm to any living being was repulsive. So I gave away all my silk saris to friends and family and switched to cotton. But a wedding, and my sons, at that, called for a silk sari," says Balasubramaniam. Thanks to the *ahimsa* silk, developed and patented by Kusuma Rajatah of Andhra Pradesh, Balasubramaniam did manage to find a silk sari that she could wear to the wedding. Rajatah is showing his wares — saris,



PRASAD GORRI/HT

**OUT OF THE BOX:** Kusuma Rajatah, showing off one of his exquisite creations.

stoles, scarves, dress materials and *angavastrams* at the Dastakari Mela in Bandra till October 14. His products may not sell by the thousands at this exhibition, but there is a select group of conscious consumers who buy his *ahimsa* silk.

Rajatah, who is a pioneer in the production of *ahimsa* silk, obtained a patent for his brand in 2006 though commercial production started in 2000. And his turnover has now grown to Rs 30 lakh a day. "It may not be much but I am happy I

have developed a way of making silk without killing the silkworms," says Rajatah.

A diploma holder in handloom textiles, Rajatah was inspired to try and find a non-violent way of making silk when in the early 90s, he heard former President R Venkataraman's wife wondering whether there was a way to make silk in a more humane way.

So Rajatah set about collecting silk cocoons from farmers and waiting for the larvae to grow into moths and break free from the cocoons. "The left-over cocoon was used to extract the silk thread. But, unlike the silk obtained from the regular method of boiling cocoons, the thread would break very often," he recalls.

Amala, former South Indian actress and now an animal activist, bought the first *ahimsa* sari. Now Rajatah gets orders from America, Europe and Australia.

"Out of 100 kg of silk cocoons I get only 16 kg of silk. This pushes up the cost of an *ahimsa* silk sari to almost twice the cost of a normal sari," he says.

So how does one spot an original from a fake? If it is *ahimsa*, the thread will show the different skeins. It will not have the same lustre though.

mini.zachariah@hindustantimes.com





# Silk that breathes life into the worm

The process does away with the boiling stage of silk worms

Staff Reporter

**HYDERABAD:** Nourished solely by Mulberry leaves, grown to 10,000 times its original size and then imprisoned in the cocoon for the best part of its existence, Bombyx Mori aka Mulberry Silk Worm endures much in return for an adult life of two to seven days, that too robbed of the ability to fly by centuries of domestication. However, its zest for life gets throttled when it is prematurely flung into a cauldron of boiling water. The birth of a single silk summons 3000 such deaths.

The life-cycle of a silk moth with all its pathos was vividly pictured in a documentary "Weaving Lives: Ahimsa Silk" screened on Monday at Goethe Zentrum, the Association for German Culture. The screening was part of an exhibition of Ahimsa Silk organised by the Association.

A mode of silk yarn production without harming the worms, Ahimsa Silk was conceptualised seven years ago by Kusuma Rajaiah, a Technical Officer employed with APCO. The process did away with the boiling stage thus allowing the worms break out of their cocoons and live a full life.

The breaking of the cocoon will waste away almost 80 per cent of the yarn, though the rest could be spun into elegant saris and dhotis, says Rajaiah. The spun silk or Ahimsa Silk, however, will cost much more than



**LIVING SILKS:** Visitors at the exhibition on 'Weaving Lives - Ahimsa Silk' at the German Culture Center on Monday. - PHOTO: NAGARA GOPAL

- Process allows worms break out of their cocoons
- Breaking of cocoon wastes almost 80 p.c. yarn

the Filament Silk.

The visual documentation of the Ahimsa Silk was begun with the intention to understand the

processes of weaving and the concerns of weavers, said the Director of Goethe Zentrum Amita Desai who conceptual-

ised the documentation project. The exhibition has displays from Peddapuram, Nalgonda, Dharmavaram and Karimnagar.

Inaugurated by the Deputy Consul General of Germany Erwin Wendland, it will be on till October 14 at Goethe Zentrum office in Nampally.

## Transport Department to start training school

Staff Reporter

**HYDERABAD:** Toeing the police line, the Transport Department has decided to start an academy of its own for conducting refresher courses to drivers and mechanics, besides giving training to staff for upgrading their skills.

Headed by a Deputy Transport Commissioner, the State Transport Academy, which is first of its kind in the country, will also have a separate re-

search wing to analyse reasons for fatal accidents and also to monitor road safety measures taken-up by the department.

The faculty will focus on pointing-out deficiencies that are resulting in accidents. Joint Transport Commissioner N. V. Subba Rao said 19 acres of land was identified at Bachupally, Medchal. "We have sent proposals to the Government and the academy would be opened within six months of getting the permission," he said.

## RTC: telephone coin box in buses by month-end

Staff Reporter

**HYDERABAD:** Taking a cue from the Brihanmumbai Electric Supply and Transport Undertaking (BEST), Mumbai transport, the city region of APSRTC is now proposing to set-up telephone coin box in buses shortly.

Under a two-month pilot project, 60 city region buses, including ordinary and metro deluxe services would be installed with one telephone coin box in each bus.

Tata-Indicom, one of the leading telecommunications company would be providing the service by this month-end, said a senior official of APSRTC.

"The telecom companies initially did not evince interest in the proposal.

Now, Tata-Indicom has come forward to it take up under a trial basis for two months," he informed. The 60 buses would be provided with a telephone coin box behind the bus driver's cabin

7011689 20,000