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Getting Malaysia into cavities worldwide

By Theresa Manavalan

DR S. Radhakrishnan has pursued his dream for a safe dental amalgam for over a decade. It might finally bring him world-wide recognition, writes THERESA MANAVALAN.

IF ever there was a Malaysian story of persistence, dentist Dr S. Radhakrishnan would be its star. For more than 10 years, he has worked on a revolutionary Malaysian-made dental amalgam.

He's got the product, he's got a worldwide patent, he's got global recognition, he's got buyers in the Philippines and India. He even got then Prime Minister Tun Dr Mahathir Mohamad to launch his product in 2001.

But he could not get a bank loan to launch a large scale production line.

During that decade, Dr Radhakrishnan was turned away by bank after bank after bank, year after year after year.

Not one would approve his application, despite his credentials or even the fact that his product - produced on a small scale - was already in the market here and in at least two other countries.

To stay afloat, he mortgaged his house and relied on several investors and a very supportive wife.

The cost of filing and sustaining a worldwide patent had cost him RM700,000. But he held on firmly to his dream of getting a bit of Malaysia into cavities around the world.

After years of frustration, Dr Radhakrishnan finally got that elusive bank loan.

It couldn't have come at a better time.

His product, Silverfil, is about to get CE rating (ISO 9001 and ISO13485) which means it can be sold as a medical device in Europe. This opens the doors for sales in Britain and the rest of Europe.

Silverfil will be launched on June 5 in London at the 50th Annual Convention of General Dental Practitioners Association of United Kingdom. He expects to sign agreements with a distributor there at the same time.

Meanwhile, China has registered Silverfil for use in its dental clinics.

That, says Teluk Intan-born Dr Radhakrishnan, is a gigantic market which may require a whole new approach to the production scale and process, including locating a plant there.

Bank Industri has approved a loan for RM2 million to be used on manufacturing equipment and packaging systems for Malaysia.

"This was the bank that didn't hesitate," says Dr Radhakrishnan. "They made a stringent evaluation, put us through our paces and approved the loan through its New Technologies Fund."

Silverfil is a dental amalgam which eliminates the risk of free mercury particles being absorbed by the body long after the patient has left the dentist's clinic.

For years, dentists worried that such free mercury particles could leach out of dental fillings due to heat and chewing and accumulate in the body, thus leading to poisoning. There is no scientific evidence to link death or significant disease to this worry, but health authorities around the world routinely raise and monitor the issue.

Britain's NHS in 1998 issued a directive to all British dentists to avoid working with amalgams on pregnant women unless it was an emergency.

"These issues were the inspiration for Silverfil," says Dr Radhakrishnan, who set up his plant at the Universiti Putra Malaysia-Malaysian

Technological Development Centre in Serdang.

The maker of Silverfil is Dunia Perwira Manufacturing Sdn Bhd, which is owned by Dr Radhakrishnan's family and individual businessman Viswanathan Selvaratnam.

Dr Radhakrishnan gave up his active practice in 1984 to venture into the dental amalgam business, starting with supplying conventional amalgams to government and private dental clinics.

During those years, he worked at home to produce a dental amalgam that would eliminate the free mercury risk talked about by health authorities around the world.

Many private dentists began using Silverfil in the late 1990s. It costs about 10 per cent more than conventional fillings.

A single shot - called a spill - costs about RM2. Large cavities need more than one spill.

Last year, government clinics in Kuala Lumpur, Negri Sembilan, Johor, Kelantan and Selangor began using Silverfil.

Silverfil is packed in small capsules with a built-in plunger to unlock the compartments for mercury and silver. The capsule is mounted on a small machine which shakes it vigorously for three seconds to mix the silver and mercury. It is then ready for use.

Dentists use ordinary dental tools to pack and shape the compound into the cavity, as they would with conventional amalgams.

Dunia Perwira Manufacturing currently produces 300,000 capsules a month and plans to triple this quantity.

Conventional amalgams are made of silver, tin and copper. Mercury is used as a solvent for the silver. In conventional amalgam, the mercury didn't always bind completely into the alloy and would eventually leach out from the filling. Mercury is one of the most toxic non-radioactive materials.

Conventional dental amalgam has been in use for than 150 years. There is no superior alternative. Existing alternatives are composite materials, mainly derivatives of the petrochemical industry.

Most are like plastic. Dentists use them for small cavities and, because composites are usually white, they are popular for the front teeth.

But for large cavities, especially those in the molar teeth, dentists find that the composite material does not always set and harden correctly. Also, shrinkage rates are significantly higher than alloy materials.

There are no dental amalgam manufacturers in Southeast Asia. All conventional amalgams now used here are imported from Australia, New Zealand, Britain and the US.

Silverfil is made of pure silver with mercury acting as the solvent.

The chemically reduced silver binds with all the mercury assigned to it to form a compound which is the filling.

No mercury is left free, thus no mercury can leach. The final product is a stable compound similar to moschellandsbergite, a hard, inert mineral found in nature near Landsberg, Germany.

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