

The ethical mridangam

In his pathbreaking work in the field of Carnatic percussion, Dr. K. Varadarangan, a Bengaluru-based vocalist, musicologist and wireless design specialist, has created a mridangam sans animal skin. In this conversation with mridangam artist R. Ramkumar, he explains how the “SRI mridangam” not only saves animals and trees but also provides tremendous advantages over the conventional mridangam.

What is the SRI mridangam made of? How is it different from a conventional mridangam?

The SRI mridangam is made of a fibreglass shell and synthetic drumheads. The drumhead material is a polyester film and the *karane* (*saadam* or *soru*—the black patch) is made with a special type of rubber. This is different from the conventional mridangam made of wood for the shell and animal skins for the drumheads, and the *karane* using boiled rice, iron oxide powder and a few other ingredients.

How is this different from a nut-bolt mridangam?

Broadly this is similar to the nut-bolt mridangam, but the clumsy and protruding hooks and nuts in the conventional mridangam are replaced by stainless steel bolts and nuts seated neatly and unobstructively. The clamps and parts of the bolts are covered by plastic casings on both sides of the drum. This not only prevents injury to the hands while playing but also gives an aesthetically pleasing, distinct look to the SRI mridangam. Also, the drumheads in the typical nut-bolt mridangam are made from animal skin.

What motivated you to make the SRI mridangam?

The main motivation was ethical. I started this work when it dawned on me that the mridangam used as an accompaniment to my vocal concerts was made of animal skins which meant that these animals had to be slaughtered to obtain the mridangam membrane. It was hypocrisy at its best—while I tried to portray divinity and spirituality in my vocal concerts, I was actually contributing to the murder of cows, goats and buffalos. I also wanted to avoid the cutting of trees and hence I focussed on alternative shell materials and fibreglass emerged as the best choice.

What does ‘SRI’ stand for?

SRI stands for “Synthetic Rhythm Indian” emphasising the fact that it is the synthetic version of the South Indian Rhythm instrument, namely the mridangam.

What were the difficulties you faced on an untrodden path?

When I started this work I had absolutely no clue as to where this would eventually lead me to. It was quite scary to think of doing something that had no precedent, and the enormity of the task ahead



Varadarangan

was simply mindblowing. Nevertheless I decided to plunge into this, come what may! Initially after studies on alternatives to animal skin for the drumhead, I did find a suitable material for it but realised that the *karane* was really a hard nut to crack. I needed a material that, bonded to the synthetic skin, was safe for the hands, could give a sustained tone and was mouldable enough to take a circular convex shape. Processing it was a formidable task. I overcame this problem after much study, thought and experimentation. My initial work was focussed more on the right drumhead and I started my experiments using a wooden shell. I was able to establish proof of concept for the synthetic mridangam in about a year’s time.

**K. Varadarangan
in conversation with
R. Ramkumar**

One of the major tasks was to design and develop the mounting and tuning arrangement for the drumhead. Initially I designed a hoop system but this turned out to be highly unsatisfactory from the tuning perspective, as we could not align the pitches at the rim on the mridangam head at all points. If we changed the pitch at one bolt it would change the pitches at all other points as well. So after months of frustrating experiments the hoop system was abandoned for good. Then I devised a clamping arrangement for the drumhead. I tested it by subjecting the drumhead to abnormally high tensions. I also designed a beater which gave 35 lakh thuds to the drumhead. It passed all these tests without showing the slightest signs of damage.

After successful trials with the wooden shell and the synthetic clamp-based drumhead, I started developing fibreglass drum shells. This phase too had its share of woes. The initial version of the shells showed a large variation of pitch with temperature. The tone of the shell was also inconsistent from sample to sample. It took more than two years to understand and rectify these problems.

With the fibreglass shell and the new clamp-based drumhead, I started testing for tuning stability when the mridangam was played. During this phase I took thousands of readings. It was observed that the mridangam did not detune even under hard playing conditions provided certain precautions were taken during tuning. This was yet another much needed breakthrough.

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How does the sound from the drumheads of the SRI mridangam compare with that from a conventional mridangam?

The sounds are quite similar although not identical. This is to be expected as both the shell and drumhead materials are very different from the conventional ones. In general, the SRI mridangam produces slightly sharper tones while conventional mridangams produce what is known as a “warm” tone. But the synthetic drumheads produce excellent sustained tones and all the strokes that are played on the conventional mridangam can be played with greater ease on the SRI mridangam. There is thus less strain on the hands.

What about gumkis?

Most mridangists who have played the SRI mridangam feel that the gumkis sound exceptionally good on the SRI mridangam. The consensus is that the gumkis played on the SRI mridangam are way better than those from the conventional mridangam’s left head.

What type of mridangam is this? Kutchi or kappi?

This is the kutchi type. Thin strips of plastic are used instead of straw in the SRI mridangam.

Do you plan to create a kappi variant?

I have not planned it at this point of time.

Are there separate instruments for male and female voices?

Yes. The male pitch mridangam covers the range from C-E and is thus suitable for male voices and for playing with many other instruments. The female pitch mridangam covers the range from F-A. Thus, the entire gamut of pitches used in Carnatic music is covered by these two instruments. The sizes of these instruments are kept the same as the traditional mridangams of the respective pitches.

The materials used to make a conventional mridangam are said to be bio-degradable. What about the SRI mridangam?

The materials used in the SRI mridangam are fibreglass for the shell and polyester plastic for the heads. These are not biodegradable. However, if one looks at the actual ecological impact of these materials it turns out to be really negligible. Consider this: in the US alone nearly 14 crores of PET bottles are consumed on a daily basis. That said, we will still work towards making the materials used in the SRI mridangam recyclable or bio-degradable. This is not going to be easy but we will surely keep working in that direction. Most importantly, the trees are saved in this process which has a huge positive impact on the environment.



SRI mridangam

Why should a mridangam artist shift from a conventional mridangam to the SRI mridangam?

Not only is the SRI mridangam ethical and environment friendly, it also offers many advantages to the mridangam players such as (1) light weight, (2) user replaceable drumheads, (3) chemically bonded karane that does not crack, fall or wither away, (4) long lasting drumheads, (5) non requirement of semolina paste for the toppi, (6) Easy tunability of drumheads to an accuracy of +/- 1 Hz., (7) pitch stability under changing temperature and humidity, (8) aesthetic appearance, (9) cost effectiveness and (10) ease of maintenance.

The SRI mridangam is a state of the art instrument that completely eliminates the need for the mridangam artist to run to the repair shop. A spanner is the only tool required for the mridangam artist to maintain the SRI mridangam.

Are you planning to make synthetic versions of other Indian percussion instruments that also use animal skin?

Yes. Definitely! The tabla is expected to roll out this year (2017).

Where can one buy the SRI Mridangam?

The SRI mridangam is available for sale at our works in Bengaluru: Karunya Musicals, No. 86, “Haripriya”, Temple Street, NGEF layout, Sadanandanagar, Bengaluru - 560 038. However, we supply to any destination in India or abroad usually through speed post. Interested persons can contact me by email: kvranagan@karunyamusicals.com or on 99000 95989. Complete product specifications, audio and video demos, pricing details and contact information are available on our website: www.karunyamusicals.com.

(The author is a mridangam artist)