

ICAR-NIANP Commercializes Improved Gas Collection Device for Methane Measurement from Ruminants

The ICAR-National Institute of Animal Nutrition and Physiology, Bengaluru commercialized a patent applied technology 'An Improved Device for Collection and Measurement of Enteric Methane Emission in Ruminants' to InayatUllah Engineering Works (IEW), Bengaluru on 28th July 2022. Dr. Raghavendra Bhatta, Director, ICAR-NIANP, Bengaluru and Shri InyatUllah Shariff, CEO M/s InayatUllah Engineering Works (IEW) signed the Memorandum of Agreement (MoA) on behalf of their respective Organizations for the licensing to manufacture and sell the improvised gas collection device.

SF₆ technique consider the exhale of methane and sulfur hexafluoride gases from the rumen with an identical probability of interception by a breath sampler located near the nasal cavity. One of those two gases is purposeful tracer SF₆, which has a known release rate; while the release of other gas (methane) is under investigation. Thus, the concentration ratio of those gases in breath sample, accumulated over a feeding cycle can be equated to the ratio of their release rates. The SF₆ assembly include gas collection vessel, halters, and gas chromatography. Gas collection vessel is one of the important and integral components used for the collection and accumulation of 24 hr breath gas sample. The minimum duration of gas collection in SF₆ is 5-6 days; however, practically it takes about 12-15 days for the collection of minimum 5-6 successful samples. Therefore, only 40-50% of the gas collection is successful and remaining 50-60% unsuccessful collection is attributed to the leakage and blockage of halter components, breakage, leakage, and blockage of canisters. This uncertainty leads to the huge time loss, manpower wastage, prolonging of the study duration, gas losses etc. Keeping the above demerits of the existing assembly in view, ICAR-NIANP has developed the improvised gas collection device which detect the leakage and blockage of halters and canisters and monitored in real time gas collection. The advantages of using the improvised gas collection device are

- a) 100% successful gas collection
- b) No breakage of the gas collection canisters
- c) Detect immediate gas leakage and blockage from the assembly
- d) Monitor real time gas collection
- e) Avoid the unnecessary prolonging of animal experimentation
- f) Save manpower & feed cost and additional gaseous in GC
- g) Ensures uniform N₂ dilution