Strip Based Detection Tests for Selected Adulterants and Contaminants in Milk

Salient features	➢ Paper based strips for the rapid detection of neutralizers, urea, glucose, hydrogen peroxide and maltodextrin in milk. ➢ Lateral flow strips for the rapid detection of antibiotic residues (cephalexin and oxytetracycline) in milk as low as 40 ppb.
Advantages	✓ Paper based strip methods for the detection of milk adulteration. ✓ Detection of adulterants by dipping the strip in the milk or placing a drop of milk on the strip. ✓ Highly sensitive, quick response time, longer shelf life and low cost device. ✓ Good repeatability and reproducibility. ✓ Easy method for the detection of milk adulteration in the house-hold and reception area
Process technology / product developed by	Dr. (Mrs.) Rajan Sharma, Division of Dairy Chemistry National Dairy Research Institute (NDRI), Karnal, Haryana rajansharma21@gmail.com,rajansharma@ndri.res.in Dr. Y.S. Rajput, Animal Biochemistry Division Dr. Bimlesh Mann, Dairy Chemistry Division, NDRI, Karnal, Haryana.
Year	2013-14
Source of funding	MoFPI
More information	**Status of commercialization / Patent / Publications** **Technology Transfer** Technology of strips for the detection of neutralizers, urea, hydrogen peroxide, glucose and maltodextrin in milk has been transferred to M/s Rajasthan Electronics and Instruments Limited, Jaipur. Technology of strips for the detection of neutralizers, urea, hydrogen peroxide, glucose and maltodextrin in milk has been transferred to M/s Mother Dairy, Delhi. Technology of strip for the detection of maltodextrin in milk has been transferred to M/s M. Bhandari Chem Pvt. Ltd., Ahmedabad; M/s Vaishal Patliputra Dugdh Utpadak Sahkari

Sangh Ltd., Patna and M/s Havmore Icecream Pvt. Ltd., Ahmedabad.

Publications

Naik, L., Sharma, R., Mann, B., Lata, K., Rajput, Y.S. and Nath, B.S. 2017. Rapid screening test for detection of oxytetracycline residues in milk using lateral flow assay. Food Chemistry, 219: 85-92.

Lata, K., Sharma, R., Naik, L., Rajput, Y.S. and Mann, B. 2016. Lateral flow assay based rapid detection of cephalexin in milk. Journal of Food Quality. 39(1): 64-73.

Lata, K., Naik, L., Sharma, R., Jaiswal, A., Mann, B. and Rajput, Y.S. 2017. Development of competitive indirect enzyme-linked immunosorbent assay for detection of cephalexin in milk. Indian Journal of Dairy Science, 70(1): 72-80.

Lata, K., Jaiswal, A.K., Naik, L. and Sharma, R. 2014. Gold nanoparticles: preparation, characterization and its stability in buffer. Nano Trends: A Journal of Nanotechnology & its Applications, 17(1): 1-10.

Naik, L., Lata, K., Sharma, R., Mann, B. and Rajput, Y.S. 2014. Production of polyclonal antibody for oxytetracycline and their use in lateral flow assay. Journal of Microbiology, Immunology and Biotechnology, 1 (2): 8-17.

Patents

Rajan Sharma, Panchal Bhavesh Kumar and Y.S. Rajput. A strip for detection of added urea in milk and process for the same. Patent Application No. 3472/DEL/2013 dated 29.11.2013. FER reply has been submitted on 26.03.2020.

Rajan Sharma, Y.S. Rajput, Bimlesh Mann, Prerna Narula, Rahul Thakur and Brajesh Kumar. A strip for detection of maltodextrin in milk and process for the same. 2097/DEL/2014 dated 24.07.2014. FER reply has been submitted on 23.03.2020.