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# A Sui Generis Technique to Detect Pathogens in Post-Partum Breast Milk Using Image Processing Techniques

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**Abstract :** Mother's milk provides the most superior source of nutrition to a child. There is no other substitute to the mother's milk. Postpartum secretions like breast milk can be analyzed on the go for testing the presence of any harmful pathogen before a mother can feed the child or donate the milk for the milk bank. Since breast feeding is one of the main causes for transmission of diseases to the newborn, it is mandatory to test the secretions. In this paper, we describe the detection of pathogens like E-coli, Human Immunodeficiency Virus (HIV), Hepatitis B (HBV), Hepatitis C (HCV), Cytomegalovirus (CMV), Zika and Ebola virus through an innovative method, in which we are developing a unique chip for testing the mother's milk sample. The chip will contain an antibody specific to the target pathogen that will show a color change if there are enough pathogens present in the fluid that will be considered dangerous. A smart-phone camera will then be acquiring the image of the strip and using various image processing techniques we will detect the color development due to antigen antibody interaction within 5 minutes, thereby not adding to any delay, before the newborn is fed or prior to the collection of the milk for the milk bank. If the target pathogen comes positive through this method, then the health care provider can provide adequate treatment to bring down the number of pathogens. This will reduce the postpartum related mortality and morbidity which arises due to feeding infectious breast milk to own child.

**Keywords :** postpartum, fluids, camera, HIV, HCV, CMV, Zika, Ebola, smart-phones, breast milk, pathogens, image processing techniques
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