REVIEW OF LITERATURE

Lalwani V et. al. (2015) studied the fixative properties of 10% processed and unprocessed honey in oral tissues and compare with that of formalin. They observed no statistically significant difference between tissues fixed in processed and unprocessed honey compared to formalin. The tissue morphology and staining adequacy for diagnosis in honey fixed tissue was at par with that of formalin fixed tissue. They suggested that both processed honey and unprocessed honey can be used as a safe alternative for formalin.\textsuperscript{12}

Singh A et. al. (2015) done a study to compare and analyze the efficacy of cytological smears fixed in ethanol and 20% unprocessed honey using conventional Papanicolaou stain. They concluded that both ethanol fixed and honey fixed smears are at par with each other, and honey can be safely used as a substitute to ethanol.\textsuperscript{19}

Patil S et. al. (2015) evaluate the fixative property of 10% buffered formalin (control), 30% jaggery and 20% honey over 6 months and ascertaining the results using Hematoxylin and Eosin stain, Periodic Acid Schiff and Masson–Trichrome stains. They observed formalin, jaggery, and honey yielded satisfactory results even after post 6 months for H and E and special stains, whereas jaggery was found comparable to that of
formalin in tissue preservation. They propose the use of eco-friendly jaggery and honey as alternatives to formalin for long term tissue preservation.\textsuperscript{18}

Sabarinath B et. al. (2014) used honey as a fixative in a total number of 30 specimens for 24 hours, and was followed by routine processing and staining with Hematoxylin and Eosin. They observed a statistically significant differences between honey and formalin samples for both nuclear details and cytoplasmic staining, and concluded that Honey, as a tissue fixative, is easily available with no known toxicity and can be used as an alternative to formalin. However, studies should be done further to find methods to eliminate the disadvantages, such as homogenization, seen with the connective tissue. Furthermore, they suggested that studies with large sample sizes are required to obtain more conclusive results.\textsuperscript{16}

Patil S et. al. (2013) compared the tissue fixation abilities of 20\% honey, 20\% sugar syrup & 30\% jaggery syrup with that of formalin and distilled water as a positive & negative control. They fixed the tissues for 24 hours at room temperature followed by conventional processing and staining using H & E stain. Tissues were assessed for cytoplasmic, nuclear details & staining quality under light microscopy. They observed preservation of tissue by honey, sugar & jaggery syrup was comparable to that of formalin. Among the three natural fixatives, jaggery syrup excelled. They concluded that
sugar and jaggery can be use for tissue fixation and can be successfully adopted in routine histopathology laboratories in place of formalin.\textsuperscript{20}

Gunter \textbf{M et. al. (2009)} in their study used 10\% honey to fix tissues obtained from Ductal Carcinoma of Breast. Tissues were subsequently stained with Common Leukocyte Antigen, Cytokeratin 5, Cytokeratin AE1/AE3, and Epithelial Membrane Antigen. The samples were then assessed by the use of selected antibodies with and without antigen retrieval. They observed a good levels of staining without antigen retrieval for Common Leukocyte Antigen, Cytokeratin AE1/AE3, and Epithelial Membrane Antigen in breast tumor samples treated with honey. They concluded that tissue preserved in honey may not influence immunostaining as previously thought and suggest that the alcohol dehydrant may play an important role during tissue processing.\textsuperscript{5}

\textbf{Al-Maaini R et. al. (2008)} preserve fresh goat tissues in concentrations of honey ranging from 1\% to 20\% diluted with distilled water for 24 h. The tissues were processed to paraffin wax, sectioned, and connective tissues components were demonstrated using conventional textbook staining techniques. They observed that tissues treated in 5\%, 10\%, and 20\% honey at room temperature gave excellent demonstration of connective tissue components by all staining methods, and were also comparable to those obtained with formalin-fixed control tissues. However, tissues preserved in 1\% honey gave
inferior levels of staining, with results ranging from weak to unsatisfactory. They suggested the use of 10% honey as an alternative to formalin in the histological demonstration of connective tissues without the need for amendments to existing laboratory protocols.\textsuperscript{21}

**LACK OF LITERATURE**

- From the previous studies it was observed that the researchers have only evaluated the efficacy of 10\% to 20\% Honey as a fixative. None of them had checked the efficacy of Honey as a fixatives ranging from 10\% to 100\%.

- None of the study has been conducted to confirm whether DNA can be extract from HFPET, that subsequently can be utilized for genomic analysis or translational studies

- None of the study has been conducted to quantify and compare the DNA extracted from HFPET with that of FFPET.