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Methods for Synthesis and Applications for Synthetic Hydrogel – A Review

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Abstract: *Hydrogels are polymeric networks possessing the ability to uptake a large amount of water in their gel structure. Hydrogel consists of up to 90 % of water absorption capacity due to this hydrogel have lot of applications in coal dewatering, food additives, pharmaceuticals, biomedical, diaper, agricultural, wound dressing and medical field. With the help of hydrogel, we can easily deliver of various drugs, medicines from one place to another place. Due to their higher water absorption capacity, long service life hydrogel has lot of applications. Hydrogels have ability to sense changes of pH, temp. and concentration of metabolite. Hydrogels also possess good transport properties and easy to modification. Hydrogels also possess good transport properties and easy to modify and have highest durability and stability. Environmentally sensitive hydrogels have the ability to sense changes of pH, temperature or the concentration of metabolite and release their load as result of such a change. Due to high-water content, porosity and soft consistency hydrogel closely simulate natural living tissue than any other class of synthetic biomaterials. Skin is largest organ of human body and drug delivery through route called transdermal drug delivery system.*

Keywords: Electrosensitive Hydrogel Synthesis, Acrylamide and Acrylic acid, Swelling ratio, AAm/AAc Monomer Ratio

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NOMENCLATURE

AAc - Acrylic Acid AAm - Acrylamide
APS - Ammonium Persulfate
HLB - Hydrophilic–Lipophilic-Balance KPS - Potassium Peroxydisulfate
MBA - Methylenebisacrylamide PAA - Polyacrylic Acid
PAN - Polyacrylonitrile
PEGDA - Polyethylene Glycol Diacrylate PEI - Polyethyleneimine
TEMED - Tetramethylene Ethylene Diamine