4036344 SCAN/M : MAJOR: ANATOMY; M.Sc. (ANATOMY)

KEY WORDS : PLASTINATION/ LYOPHILIZATION

PHENSIRI INTHISEAN: USING LYOPHILIZATION INSTEAD OF ACETONE DEHYDRATION IN SHEET PLASTINATION OF HUMAN BRAIN. THESIS ADVISORS: BOONSIRM WITHYACHUMNARNKUL MD., Ph.D., REON SOMANA M.D., Ph.D., SANJAI SAENGVICHIEN M.D., Ph.D.

40 P. ISBN 974-662-313-3

In the plastination process, the use of acetone in the dehydration step has become a problem because of its toxicity and high cost. This study was aimed at developing a technique that could eliminate or reduce the use of acetone. The standard procedure for S10 plastination of brain-slices was employed. The only difference was that tissue water was removed from fixed human brain-slices by lyophilization instead of acetone dehydration. The brains were sliced at 4-6 mm thick. in coronal, horizontal and sagittal planes. Slices of the whole brain were frozen and lyophilized for 48 hours, by which time the tissue water was totally removed. The specimens were subsequently processed by forced impregnation and curing. After curing, the degree of shrinkage of the plastinated brain slices was determined. The shrinkage was, on average, 6%, which was less than that under the conventional acetone dehydration method. In addition, distinctive contrast between the white and gray matter was revealed, even without staining. The gray matter was brown and the white matter remained white. This method yielded high-quality plastinated brain-slices, and eliminated cost and hazard of employing staining chemicals and acetone.