Histological and cytological study of the effect of intake of some common diets on the secretory structure of lactating mammary glands of albino rats

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Two popular foods commonly used by many lactating women were used in this study to show their effect on the histology andcytology of the secretory structure of the lactatinggland of albino rats. These are ”Helba” oil extracts and”Moughat”.sixty female albino rats were utilized in this study. Someof them were immature (fourty five days old), the rest were adultlactating female rats. Animals were fed a basal diet and weredivided into six groups (each ten rats):1- The control group.2- The group which was fed ”Helba” oil extracts.3- The group which was fed ”Moughat”.4- The group which was fed ”Helba” oil extract and ”Moughat”and served as a control to the fifth group.5- The group which was fed ”Moughat” and ”Helba” oil extractand parlodel, (added to inhibit prolactin hormone).6- The immature female rats which were fed ”Helba” oilextracts and Moughat plus the basal diet.Paraffin sections were prepared and were exposed to the followingtechniques: Heamatoxylin and Eosin method for the generalmorphology, periodic acid Schiff for demonstration of carbohydratesand Best’s. carmine method for demonstration ofglycogen in the acinar cells of lactating gland.cryostat sections were prepared for the demonstration of fatusing Sudan III method.Electron microscopic sections were prepared from the firstthree groups to show the effect of ”Helba” oil extraction and”Moughat” on the fine structure of lactating mammary gland ofrats.The histological changes revealed that the glandular tissuewas arranged in the form of large lobules with very thin connectivetissue septa in between.In the group which was fed ”Helba” oil extracts the lobuleswere formed of widely distended acini and more distention occuredin the group which was fed ”Moughat” and the group which was fed”Helba” oil extract and ”Moughat”.The group in which parlodel was added, the lobules decreasedin size, the connective tissue in between became thicker and someacini were collapsed. The group of immature female rats showeddense C.T. stroma.strong Sudan III staining was detected in the group whichwas fed ”Helba” oil extract. Intense staining III was detectedin the group which was fed Moughat, and the group which was fed”Helba” oil extract and ”Moughat”. Weak staining in the acini andstrong staining in the adipose tissue inbetween in case of additionof parlodel.Weak staining was seen in the group of immature female rats.The group which was fed ”Helba” oil extract showed a strongreaction of Best’s carmine in the

cells lining the acini. An intensereaction was detected in the group which was fed ”Moughat”,and the group which was fed ”Helba” oil extract and ”Moughat”.Amoderate reaction was shown in the group in which parlodel wasadded, a weak one in the group of immature female rats.The P.A.S reaction was moderate in the basement membrane ofthe acini and C.T in between, in the group which was fed ”Helba”oil extract and strong in the group which was fed ”Moughat”, andthe group’ which was fed ”Helba” oil extract and ”Moughat”. Amoderate reaction was seen in the group to which parlodel wasadded to the food and weak in the C.T stroma forming the mammarygland of immature female rats.The electron microscopic studies revealed that there was amarked increase in the activity of the acinar cells of the groupwhich was fed ”Moughat” more than that which was fed IlHelba”oilextract. Both groupS were more active than the control groupwhich was fed the basal diet. This activity was evident in-theprominent rough endoplasmic reticulum, the well developed GQ• lgiapparatus in the supranuclear zone, the numerous mitochondriascattered in the cytoplasm, the presence of lysosomes, ’thenumerous secretory granules which may be large enough to pushaside the nucleus and the large fat DROPlets.The possible explanation for these results were then in discussed.