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Scanning electron microscopy studies of *Bufo marinus* tongue have revealed some striking differences among distal, central and proximal regions of the dorsal mucosa [1]. The fine structure of the dorsal lingual epithelium of *B. japonicus* has been recently studied [2]. Herein we studied the ultrastructural features of the epithelial cells covering filiform papillae and glands of the distal lingual region. One adult specimen of *B. marinus* L. was used in the present study. The tongue was removed under MS-222 anesthesia and fixed by immersion in half strength Karnovsky fluid at 4°C over night. Before post fixation in 1% osmium tetroxide solution, the samples were treated in buffered 1% tannic acid for 2 hr at room temperature. Before dehydration the pieces were stained “in block” over night with uranyl acetate solution. After epoxy-resin embedding semi-thin and ultrathin sections were obtained, stained correspondingly, and observed and photographed under light and transmission electron microscopy. Light microscopy observations on stained semi-thin sections showed striking differences between superficial and glandular epithelium. Superficial epithelium is bistratified: the superficial stratum is formed by low cylindrical mucous cells with round euchromatic basal nucleus and apical translucent cytoplasm with few densely stained granules while the basal stratum is constituted by comparatively less numerous intensely stained dendritic cells whose thin apical extensions are directed towards the free surface. The glandular epithelium is simple and composed by numerous dense granular mucous cells, and sparse ciliated and clear granular cells. Electron microscopic observations revealed superficial mucous cells showing small size, bulging surface crowned by stout apical micro ridges, electron lucent cytoplasm containing very loosely packed electrondense mucous granules, and sparse rough endoplasmic reticulum (RER), mitochondria, and polysomes (Figure 1). These cells are joined through interdigitations and desmosomes to apical extensions of underlying non-mucous dendritic cells with dark cytoplasm and apical microvilli (Figure 1). Mucous glandular cells showed basal nucleus with highly developed perinuclear RER, and mitochondria. The apical cytoplasm, filled with mucous granules, ends with branched microvilli-like expansions displaying glycoicalix. Some mucous granules showed inner organization with randomly or concentrically packed dots or tubules (Figure 2). Glandular mucous cells are joined to mitochondria rich or to ciliated cells through tight junctions, numerous interdigitations and some desmosomes (Figure 2). Ultrastructural characteristics of the lingual epithelium of *B. marinus* has essential similarity to that described in other anurans species [2, 3].

References:


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Fig. 1. Mucous superficial cells (MS) with loosely packed mucous granules (m) and bearing apical microridges (mr) are joined to apical extensions (ae) of dark subjacent cells (DC) bearing microvillar (mv) apical extensions. N=nucleus.

Fig. 2. Mucous glandular cells (MG) with densely packed mucous granules (m) are joined to ciliated cells (CC) by tight junctions (tj) and desmosomes (D). ci=cilia; mi= mitochondria; RER=rough endoplasmic reticulum; N=nucleus.