Histochemical and ultrastractural studies on the developmental stages of the grape

(Vitis vinifera L. var Yaghooti)

S.Hatmi & H.Rajai

West Azarbadjhan Agriculture research center

Dep.of Biology , college of science ,Shiraz university

Ultra stractural changes in the dermal system of the grape (Vitis vinifera L.var Yaghooti) berry were studied with Transmission electron microscopy at successive stage of fruit development.The growth curve obtained from the measurements of the fresh weights and diameters of the fruit ,demonstrated a double sigmoidal pattern with three distinict phases.Dermal system of the grape berry consisted of outer epidermis of pericarp covered with its cuticle and four layers of hypodermal collenchyma cells of lamellar type. The cuticle had a layered structure consisting of cuticle proper and cuticular layer.The epicuticular wax was amorphus and did not change during fruit development. Cuticle proper, composed of polymerized cutin and wax , had aslightly reticulated pattern. Cutinized wall layers showed a fibrilar reticulated aspect.The texture of the cuticle was completed at the end of the first growth phase,and did not change thenafter change in cuticle thickness was noticed during fruit development. Tangential expansion of the cells of the dermal system was synchronized with the synthesis of new wall materials. The new materials were mainly soluble pectin substances and showed no reaction with periodic asid schiff reagenta (PAS).Vacular polyphenolic compounds had distinct

forms and changed during fruit development.Histological changes during developmental stages include :

1-Reduction in density of cuticle after second growth phase

2-Breakdown of polyphenplic compounds

Also number of hypodermal collenchyma cell layers in dermal system is the other effective factor.According on histochemical changes ,we can introduce the second growth fase as a more sensetive stage for patogenous agents.