Cyctocerosis cellulose, caused by the larval stage of *Bucephalorum*, is one of the most important public health problems for both humans and hogs in endemic areas: Africa, India, Pakistan, China, Korea, and continental Latin American countries. As yet there is no effective therapeutic measure which can destroy the larvae in tissues and organs of the body except surgical excision (Feust, Russell and Jung, 1976). Recently, *Bucephalorum* (phyllophaga)-*hymenolepis*-2-carbamate (Hochzet Parherwer Ad.), has been reported to be highly effective in low dosage levels against rabbits (Tanaka et al., 1976). Larval cytoceropsis (Minz, 1978; Eckert et al., 1978), as well as intestinal helminthic infections (Brug, and Hsia, 1976; Cusplante et al., 1977; Marx et al., 1978; Craig and Beal, 1978). These informations prompted us to use this drug against cyctoceross cellulose in pigs.

The study was carried out in Cheju Island, where has been reported as one of the heavy endemic foci of cyctocerosis cellulose in Korea (Cho et al., 1976). By the survey on the infection of *Cyctoceropsis cellulose*, 19 naturally infected native pigs, weighing 38 to 113 kg, were purchased and moved to Cheju Animal Health Laboratory for the purpose. The pigs were divided into 8 groups and non-treated control. Paracur (1 g/animal) 22 mg/kg active ingredient of *Fenbendazole* was administered orally in each group according to the Fenbendazole base. The drug regimen were 45 and 20 mg/kg body weight/day for 14 consec. days in 2 groups, and 25, 15 and 5 mg/kg body weight/day for 14 and 7 consec. days in 6 groups, respectively.

To assess the effectiveness, treated pigs, together with non-treated controls, were sacrificed and autopsied after the completion of medication. *Cyctoceropsis cellulose* were recovered from muscles, brain, tongue, eyes and brain, and examined for the degree of infection and then, all meat was cut into thin slices to examine for the cysts. Light microscopes, and scanning and transmission electron microscopes were employed for the examination.

For scanning electron microscopy (SEM), cyst bladder of *Cyctoceropsis cellulose* (C. cellulose) was carefully isolated to expose the head portion of larvae. Mobile scolexes were immobilized by light anesthesia using 1% MS 222. Specimens were fixed in 4% glutaraldehyde in 0.1M cacodylate buffer (pH 7.2) for 2 hr, washed several times with distilled water, immersed in 1% tannic acid for 30 min, rinsed in distilled water. Dehydration was done in graded series of ethanal. The specimens were dipped in isopryl acetate, and transferred into a Hitachi HCM-1 critical-point dryer. The dried specimens were mounted on metal stubs, sputter coated with a Hitachi S-410 scanning electron microscope.

For transmission electron microscopy (TEM), the exposed larvae were fixed as before. The specimens were dissected and divided into 3 portions: scolex, pseudopodrigolitits and bladder, and fixed again for 1 hr. After soaking in cold buffer, the specimens were postfixed in 1% osmium acid for 2 hr, dehydrated in ascending series of ethanol, and embedded in a mixture of Epon 812 and 815. Ultrathin sections were cut with a LKB ultra microtome and stained with saturated uranyl acetate and Reynolds lead citrate. The specimens were studied in a Hitachi HU-12 electron microscope, operating at 100 keV.

In the results of autopsies after treatment, Fenbendazole was proved to be highly effective against *C. cellulose* at every dosage group of pigs. The cysts in muscles were deflated and shrunken, and looked like small rice grains or millet seeds in size and shape. Muscle fibres of treated pigs became vivid and fresh. The cysts in tongue showed as a small whitish granular mass. Degenerated cyst in conjunctive seen as a pinpoint nearly dot. However, the cysts in brain were diverse in size, and appeared to be in process of disintegration. Therefore, electron microscopic examinations were focillated on the changes of *C. cellulose* in brain.

In the TEM of treated *C. cellulose* in brain, restellar part was completely destroyed, and hooklets were entirely exposed. Contractions of scolex, neck and pseudopodrigolitits were conspicuous compared to the untreated larvae. Tegmental surface of such were remarkably degenerated, and showed crater-like appearance. Microtriches were disintegrated and disappeared, and membranes blurs were found on the tip of degenerated surface. Neck and pseudopodrigolitits region were also severely affected and showed spongy appearance.

In the TEM of pseudopodrigolitits of treated *C. cellulose* in brain, microtriches were sparse and disappeared. Knot-like elevation was observed on the tegumental surface. Increase of small vacuoles, granules and lipid droplets were occurrence in tegument of treated *C. cellulose*. Thin sections of neck and bladder showed partial or complete disappearance of tegument from the necrotized cytoplasm. In the subterminal tegument, basal lamina, fibrous zone, circular and longitudinal muscles, cytoplasmic extensions, mitochondria, Golgi apparatus, plasma cells, nucleus, and other microorganisms and inclusions were disorganized and had lack of normal structural details. Among them, thin sections of plasma cell revealed marked atrophy and disorganization of nucleus, rosettes and neuronal body. Flagella retained barely the 2 and 3 arrangement of cilia, but were disrupted and partly disappeared in the periphery of the lumen.

*C. cellulose* in muscles after treatment showed marked surface changes and contraction of scolex, neck, and bladder by SEM. Thin sections revealed extensive degeneration, necrosis and disruption of tegument and subterminal tegumental region.

Body weight of the treated pigs showed remarkable increase after the administration of Fenbendazole compared to the non-treated infected controls. Some pigs showed decrease of appetite during the treatment, but none was interfered the completion of medication by the side effect.

Conclusions:
Cyctocerosis cellulose was successfully treated by the oral administration of Fenbendazole at a daily dose of 5 mg/kg body weight for 7 consecutive days. The effectiveness was assessed by the scanning and transmission electron microscopic observations of the larvae in pigs after treatment.