Evaluation of Development of optimum hydroelectric power-generation for independently-powered water meter
자가발전형 유량계에 최적화된 발전부의 개발에 대한 연구 및 평가

박영도[1] · 백종후[2] · 신민철[3] · 박재우[4]
Park, Youngdo·Paik, Jong-hoo·Shin, Min-chul·Park, Jae-Woo

Abstract

This research tried to develop the independently-powered water meter to follow technical issue of deficiency of energy resources and advance of ubiquitous life. To remove water protection part, which causes high energy loss, generators should be located outside of pipes and energy generated inside of pipes was transferred to outside of pipes. Therefore, it is important to raise the energy efficiency of impellers and motors respectively, since they directly affect energy generation. In case of impeller, it was assumed that impellers which were usually used all around were the most efficient and manufactured according to their angle, figure and numbers. It was considered that energy loss was around 20%. In case of motor, expected revolutionary rate was considered to find optimum ratio with electricity output. To combine efficient impeller and motor, it is necessary to adjust the impeller revolutionary rate and required revolutionary rate of motor. Additionally, it is important to measure the efficiency of water meter, which were manufactured with resulted parts, seriously considered in this research.

Keywords: hydroelectric power-generation; independently-powered water meter; motor; impeller; water supply facilities

1) 한양대학교 토목공학과 · 석사과정 · E-mail: ydpark0402@gmail.com
2) 요업기술원 · 책임연구원
3) 자인테크놀로지(주) · 사장
4) 정회원 · 한양대학교 토목공학과 · 교수

전라남도 지역 가축의 장내 *Enterococcus*의 항생제 내성
Antibiotic resistance pattern in *Enterococcus* isolates from domestic animals in Jeonnam province, Korea.

Han Dukki [1], Tatsuya Unno[2], Kim Joon-Ha[3] Hur Hor-Gil [4]

Abstract

Excessive use of antibiotics to animals and humans caused antibiotic resistance to intestinal microorganisms. In this study, the agar dilution method was used to test antibiotic resistance in *Enterococcus* isolates obtained from bovine, hog and poultry farms (beef cows, milk cows, pigs, chickens, and ducks) in Jeonnam province, Korea. Four hundred ninety fecal samples were collected from July to August 2007, and 2008. Fifteen hundred and sixty seven *Enterocooccu*s were isolated from the animal feces using mEnterococcus agar plates and Enterococcosel broth. In this study, tetracycline, ampicillin, ciprofloxacin, gentamicin, erythromycin, chloramphenicol, and vancomycin were used for the antibiotic resistance test. Isolates from poultry farms (chickens and ducks) showed high resistance to the antibiotics, followed by isolates from hog farms (pigs) and bovine farms (beef and milk cows). Almost all domestic animals showed high resistance to tetracycline, followed by erythromycin, ciprofloxacin, gentamicin and chloramphenicol in order. All sources showed no resistant isolates to vancomycin and ampicillin.

Keyword: *Enterococcus*, Antibiotics

1) Dukki Han, Gwangju Institute of Science and Technology, MS candidate, E-mail: fkzmfn@gist.ac.kr
2) Tatsuya Unno, GIST, Ph. D candidate
3) Joon-Ha Kim, GIST, Assistant professor
4) member, Hor-Gil Hur, GIST, Associate professor