Public health microbiology 衛生微生物学

PP-01
Analysis of fungal species causing black spots on clothes
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衣類の黒斑兎渇解析
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Key word：black spots，dematiaceous fungi, Exophiala，Phoma，Philothora

Many people in Japan sometimes encounter small black spots dotted on clothes, which make them uncomfortable. In this study, we hypothesized that such small black spots consisted of microorganisms, and collected 35 items of clothing with black spots to identify the microbial species. To examine the morphological characteristics of such black spots, we observed the fibers in black spots on clothes by microscopic observation. The black spots of all samples comprised dematiaceous fungi, and most of their forms were agglomerations or chains of conidia. The fungi causing black spots might survive with a stress-resistant morphology. Fungal communities in black spots and major isolates from them were able to determine DNA analysis. The DNA sequence similarity between the isolates and the direct DNA extracts was almost identical on the 28S RNA D2 region in 80% of clothes samples with black spots. The results of RNA analysis suggested that the communities were limited on fungal species and the major were Exophiala, Phoma, and Philothora. Isolates of Exophiala and Phoma detected frequently from clothing samples were not included in the known species based on the sequences of 28S rRNA D2 region. Philothora isolates were identified as Philothora europaea based on sequences of D2 region and morphological characteristics.

PP-03
Survival of Escherichia coli in pesticide solution.
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農業薬における大腸菌の生残性
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Key word：E. coli, pesticide

Using pesticides for maintaining productivity of vegetable is common and important procedure. However, survival of foodborne pathogen such as enterohemorrhagic Escherichia coli or Salmonella in TPN pesticides which are retailed in North America was reported. TPN pesticides are common agricultural chemicals in Japan, but composition of these products differs from foreign products. So, the effect of these pesticides in survival of E. coli strains was examined.

To determine the antimicrobial activity of TPN against E. coli strains, cell suspension of E. coli (106 CFU/ml) was inoculated on Mueller Hinton agar plate with TPN and incubated at 30 degree C for 24 h. To clarify the survival of E. coli strains in commercial product (agricultural use) of TPN, three kinds of TPN pesticide were observed. Each pesticide was diluted with 1,000 volume of distilled water and inoculated 20 strains of E. coli respectively. Culture bases were incubated for 18 h. To determine the survival of E. coli strains, each tube were decided by culture-based method.

Antimicrobial activity of TPN (reagent) against 26 strains of E. coli, including clinical isolate was all negative. Besides, 26 strains of E. coli did not grow in three kinds of pesticide solution. These results suggest that sub material of pesticide in Japanese commercial product has important role for antimicrobial activity against E. coli.

PP-04
Effect of water on estimation of Escherichia coli population in sample reduction.
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縁分時の大腸菌数に及ぼす水の影響
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Key word：E. coli, sample reduction

Estimation of microbial population is quite important for ensuring food safety. But it is difficult to deal with a large amount of soil sample or many samples for estimating target microbes. Developing appropriate procedure of sample reduction give us strong tools and saving time for microbial estimation. So, we investigated effect of vehicle on evenness of microbial population in sample reduction. Different type of soil, grey low land soil and Andosol, were collected from agricultural field and delivered 100 g of soil as aliquot. Cell suspension of Escherichia coli which was isolated from agricultural field was added to aliquot and mixed in blinder at 5,000 rpm for one, three, five or ten minute(s). If necessary, four volume of sterilized distilled water was added to aliquot as vehicle. After mixing, ten specimens (about 5g) were collected and used for deciding population size of E. coli by culture-based method with Lennox agar plate.

When soil was mixed without water, population size of E. coli in each specimen was varied even though soil sample were mixed for ten minutes. Some sample contained same level of inoculums and other samples were below detection limit. On the contrary, when soil samples were mixed with water, population size of E. coli in each aliquot was similar and recovery rate was more than 70%. So, we conclude that adding water is a primitive process in sample reduction.