

형태학적 특성과 분자생물학적 방법을 통한 분류를 시도하였다. 상기 동충하초는 박쥐나방의 애벌레를 기주로 하여 발생하였으며, 애벌레의 머리끝에서 1-3개의 자실체를 형성하였다. 자실체의 크기는 3-10 cm X 0.12-0.2 cm, 자낭각은 32 X 55 mm, 자낭은 1.5 X 43.3 mm의 크기였으며, 자낭포자는 1-2 X 7-8 mm의 크기로 직사각형 형태였다. ITS 영역을 PCR 기법으로 증폭하여 530 bp 크기의 product를 얻었으며 염기서열을 분석한 결과, *C. militaris*와는 91 %, *C. nutans*와는 88 %의 identity를 보였다.

**A306**

***Sporobolomyces koreensis* sp. nov.,  
a Novel Yeast Species Isolated from  
*Lilium* sp. in Korea**

**Soon Gyu Hong<sup>1</sup>, Wonjin Jeong, Kang  
Hyun Lee and Kyung Sook Bae**

Korean Collection for Type Cultures, Korea  
Research Institute of Bioscience and Biotechnology,  
Taejon 305-600

A novel ballistosporic basidiomycetous yeast, *Sporobolomyces koreensis* (type strain SG99-37), was described that was isolated from flowers of *Lilium* sp. in the province Kyungsangbukdo. Comparative analysis of the D1/D2 domain of 26S rDNA of all available sequences for basidiomycetous yeasts showed that the strain did not match with any other species in the database. The closest relative was *Sporidiobolus pararoseus* Fell & Tallman, but the two species differed in 6 out of 591 nucleotide positions (98.98% similarity). The strain was assigned to the anamorphic genus *Sporobolomyces* because sexual reproduction was not found. The strain could not ferment any carbon sources tested. It had Q10 as a major ubiquinone system and showed positive results for a urease and a Diazonium Blue B tests. Content of G+C was 58.5%. It differed from *Sporidiobolus pararoseus* in the following characteristics: ability to assimilate raffinose,

L-arabinose, glycerol, succinate, and citrate as a carbon sources and ethylamine, L-lysine, and cadaverine as a nitrogen sources, sensitivity to 0.01% cycloheximide, and ability to grow in high osmotic pressure (16% NaCl/5% glucose).

**A307**

**A New Yeast Species Isolated from  
Beer Sludge**

**Kee-Sun Shin<sup>1</sup>, Yung-Hee Kho<sup>2</sup> and  
Kyung-Sook Bae<sup>1</sup>**

Korean Collection for Type Cultures (KCTC),  
Korea Research Institute of Bioscience and  
Biotechnology (KRIBB), P. O. Box 115, Young,  
Taejon<sup>1</sup>; Advanced Biomaterials Research Center,  
Korea Research Institute of Bioscience and  
Biotechnology (KRIBB), P. O. Box 115, Young,  
Taejon<sup>2</sup>

The taxonomic position of a yeast strain H12, formerly identified as *Saccharomyces cerevisiae* H12, was reexamined. Sequence analysis of D1/D2 LSU rDNA as well as physiological and chemotaxonomical studies on strain H12 placed it under the genus *Candida*, including *Clavispora lusitaniae* (*Candida lusitaniae*) and *Clavispora opuntiae*. However, there were several differences in some physiological characteristics and 26S partial sequence (more than 5% similarity difference level), which are making the strain recognizable from other *Candida* species. The results of the present study indicated that strain H12 should be placed under the genus *Candida* as a new species. The type strain of the new species is strain H12 (= KCTC 7268<sup>T</sup>).

**A308**

***Paenibacillus taejonensis* sp. nov., a  
New Alkali-tolerant Bacterium from  
Soil**

**Jung-Sook Lee<sup>1,2</sup>, Keun Chul Lee<sup>1</sup>, Hyun**

Woo Oh<sup>1</sup>, Yu Ryang Pyun<sup>2</sup> and Kyung Sook Bae<sup>1</sup>

Korean Collection for Type Cultures, Korea Research Institute of Bioscience and Biotechnology, P.O. Box 115, Yusong, Taejeon 305-600<sup>1</sup>; Department of Biotechnology, Yonsei University, Seoul 120-749<sup>2</sup>

The taxonomic study of strain AP-20<sup>T</sup> which was isolated from the soil was examined. This organism has alkali-tolerant ability to grow at wide range of pH (pH 7.0-13.0). The growth rate was higher at pH 8.0-12.0 than at pH 7.0. The DNA base compositions of this strain was 53 mol %. This strain contained mannaquinone 7 as the main respiratory quinone and meso-diaminopimelic acid in the cell-wall peptidoglycan. The major cellular fatty acid of the isolate was anteiso-C<sub>15:0</sub> (36%). Levels of 16S rDNA similarity between strain AP-20<sup>T</sup> and other *Paenibacillus* species were 93.9 to 89.8%. The results of 16S rDNA sequence comparisons revealed that the strain AP-20<sup>T</sup> formed an evolutionary lineage distinct from other *Paenibacillus* species. On the basis of morphological, physiological and chemotaxonomic characteristics, together with 16S ribosomal DNA sequence comparison data, we propose the new species of the genus *Paenibacillus*, *Paenibacillus taejonensis* sp. nov., the type strain of which is AP-20<sup>T</sup> (= KCTC 3745<sup>T</sup>).

**A309**

**DNA Base Composition and Genetic Diversity of Cyanobacteria Determined by DNA Polymorphisms within the Phycocyanin Locus**

Ju-Lee Kwon, Seong-Sook Huh, Soon-Ae Yoo<sup>1</sup> and Jin-Sook Park<sup>2</sup>  
Dept. of Microbiology, Hannam University, Daejeon 306-791; Dept. of Biology, Paichi University, Daejeon 302-735<sup>1</sup>

Molecular methods generally used for

bacterial systematics are difficult to apply to cyanobacterial taxonomy, because cyanobacteria have been difficult to cultivate axenically. The cyanobacteria carry out oxygenic photosynthesis unlike the heterotrophic bacteria which are major contaminants in the cultures. The photosynthetic apparatus of a cyanobacterium contains chlorophyll a and specific accessory pigments, including phycocyanin, allophycocyanin and phycoerythrin. Cyanobacterial strains from different genera were characterized by DNA base composition and PCR/RFLP of the phycocyanin gene containing the IGS. All cyanobacterial strains used were amplified by the primers used for amplification of phycocyanin locus. Amplified PCR products were digested with *AluI*, *CfoI*, *HaeIII*, *MspI*, *RsaI*. The restriction enzyme profiles revealed a coherent cluster among *Chlorogloea* and *Synechocystis* strains, respectively. Then, each cluster correlated with the GC contents. But The strains of the other genera formed a heterogeneous group.

**A501**

白頭山과 漢拏山の 山頂北쪽 岩隙의 이끼群落

최두문\*, 김종균  
공주대학교 생물교육과

1. '93년 얻은 천문봉 암극에 착생한 13종, 북한에서 천지의 북경사면에서 얻은 6종, 본인이 백록담 북암극에서 얻은 19종, 홍원식씨가 백록담에서 얻은 12종 등, 총 40여종을 고산성을 중심으로 비교하였다.

2. 천문봉 정상에 같은 소암극에서 굵은 덩굴식물과 이끼 군락의 발견은 그 생태학적 의미가 크다. 이 두산의 공통종으로 암극성은 고산솔이끼, 솔이끼, 세우이끼, 고깔바위이끼, 벼솔이끼 등이며, 백두산 암면에는 더욱 지의류인 지도지의 (*Rhizocarpon*)가 많다. 북극성 희종인 긴삭병이끼 (*Messia*), 북극초롱이끼 (*Cinclidium*) 등이 암극쪽에 없는 이유는 수분 효과로 생각된다. 학계서 유명한 원시이끼

(*Takakia*)는 분실한 것 같다.

### A502

#### 한국산 변형균의 다양성과 신한국명

김종균\*, 최두운  
공주대학교 생물교육과

1. 한국의 변형균연구는 1918년 야채밭에서 말린관벌레팡이 발견으로 시작된다. 그 후 여러 일인들의 자료를 나카가와구이찌(中川九一, 1934), 애모토요시가스(江本義數, 1942, 1977) 등이 한국산 130여종을 발표하였다. 이 목록에는 거의가 낙엽과 부목성 종류 뿐이며 필수적인 미소한 수피착생과 호설성 종류는 미기록이며 남방계 종류는 거의 없다.

2. 본인은 공주지방에서 (1958) 균류 연구를 시작했으나 완도지방 (1961)것을 합하여 분류학적 연구에서 (1981) 세포성 점균을 합하여 132종류를 정리하여 한국명을 만들었다. 그러나 그 후 50여종류의 심한 학명 변화가 생겨 11과 34속 145종류를 정리하고 신한국균류명을 만들었으며 신일본명을 병기하였다.

### A701

#### New Records of One Marine Hydromedusa and One Freshwater Hydra Species

Jung Hee Park

Division of Life Science, College of Natural Sciences, The University of Suwon, Suwon 445-743

Hydromedusa and hydra specimens were collected from the coasts of Geojedo Island and Jisanchon Stream in Kyonggi-do during July 1999 - June 2000. They were identified into *Phialidium folleatum* McCrady, 1857 (Campanulariidae, Leptomedusae) and *Hydra magnipapillata* Ito, 1947 (Hydridae, Athecatae) respectively. *P. folleatum* is a small marine hydromedusa, below 5 mm wide and has a minute statocyst between successive tentacles. *H. magnipapillata* is blackish or light brown color, cylinder-shaped trunk reached

to 20 mm long and 5-6 mm wide in fully extended, and generally 5-6 highly delicate long tentacles. They are new to the Korean fauna.

### A702

#### Embryonic and Postembryonic Development in the Crayfish *Cambaroides similis* (Koelbel, 1892) (Decapoda: Cambaridae)

Hyun-Sook Ko<sup>1</sup> and Tadashi Kawai<sup>2</sup>

Dept. of Biology, Silla University, Pusan 617-736<sup>1</sup>;  
Hokkaido Fisheries Experimental Station,  
Hokkaido 046-8555, Japan<sup>2</sup>

The embryonic and postembryonic development of the Korean crayfish, *Cambaroides similis*, was described in detail and compared with other known species of Astacidae and American Cambaridae to examine the phylogenetic relationship of Asian crayfish, *Cambaroides*. Ovigerous females appear in May. Incubation of the juvenile lasts about six weeks at 14-16°C, between June and July. Durations of stage 1 and stage 2 juveniles are two and four weeks, respectively. From stage 3 juvenile, it leaves from its mother. On the basis of the juvenile's morphology the Korean crayfish, *Cambaroides similis*, does not show the phylogenetic relationship with American Cambaridae.

### A703

#### A New Species of *Phyllopodopsyllus* (Copepoda; Harpacticoida; Tetragonicipitidae) from Okinawa

Hwa-Ja Lee

Dept. of Biology, College of Natural Sciences,  
Cheju National University, Cheju 690-756

A new species of genus *Phyllopodopsyllus* (Tetragonicipitidae), collected from the *Cladophoropsis zollingeri* (Siphonocladaceae) of Sesoko island, Okinawa, is described and