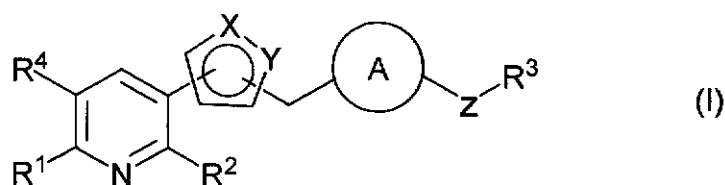


ABSTRACT

PYRIDINE DERIVATIVES SUBSTITUTED BY HETEROCYCLIC RING AND PHOSPHONOAMINO GROUP, AND ANTI-FUNGAL AGENT CONTAINING SAME

The present invention provides an anti-fungal agent having an excellent anti-fungal
5 action and excellent physicochemical properties such as safety and solubility in water. The
present invention discloses a compound represented by the following formula (I) or a salt
thereof:



[wherein R¹ represents a hydrogen atom, a halogen atom, an amino group, R¹¹-NH- (wherein
10 R¹¹ represents a C₁₋₆ alkyl group, a hydroxy C₁₋₆ alkyl group, a C₁₋₆ alkoxy C₁₋₆ alkyl group or
a C₁₋₆alkoxycarbonyl C₁₋₆ alkyl group), R¹²-(CO)-NH- (wherein R¹² represents a C₁₋₆ alkyl
group or a C₁₋₆ alkoxy C₁₋₆ alkyl group), a C₁₋₆ alkyl group, a hydroxy C₁₋₆ alkyl group, a cyano
C₁₋₆ alkyl group, a C₁₋₆ alkoxy group or a C₁₋₆ alkoxy C₁₋₆ alkyl group or a phosphonoamino
group; R² represents a hydrogen atom, a C₁₋₆ alkyl group, an amino group or a di C₁₋₆
15 alkylamino group or a phosphonoamino group; one of X and Y is a nitrogen atom while the
other is a nitrogen atom or an oxygen atom; ring A represents a 5- or 6-member heteroaryl
ring or a benzene ring which may have a halogen atom or 1 or 2 C₁₋₆ alkyl groups; Z
represents a single bond, a methylene group, an ethylene group, an oxygen atom, a sulfur
atom, -CH₂O-, -OCH₂-, -NH-, -CH₂NH-, -NHCH₂-, -CH₂S- or -SCH₂-; R³ represents a
20 hydrogen atom or a halogen atom or a C₁₋₆ alkyl group, a C₃₋₈ cycloalkyl group, a C₆₋₁₀ aryl
group, a 5- or 6-member heteroaryl group or a 5- or 6-member nonaromatic heterocyclic
group which may have 1 or 2 substituents; and R⁴ represents a hydrogen atom or halogen
atom; provided that either R¹ or R² represents a phosphonoamino group.]