

FIGURE 1
STRUCTURES OF SOME HYDROXYBENZOATES

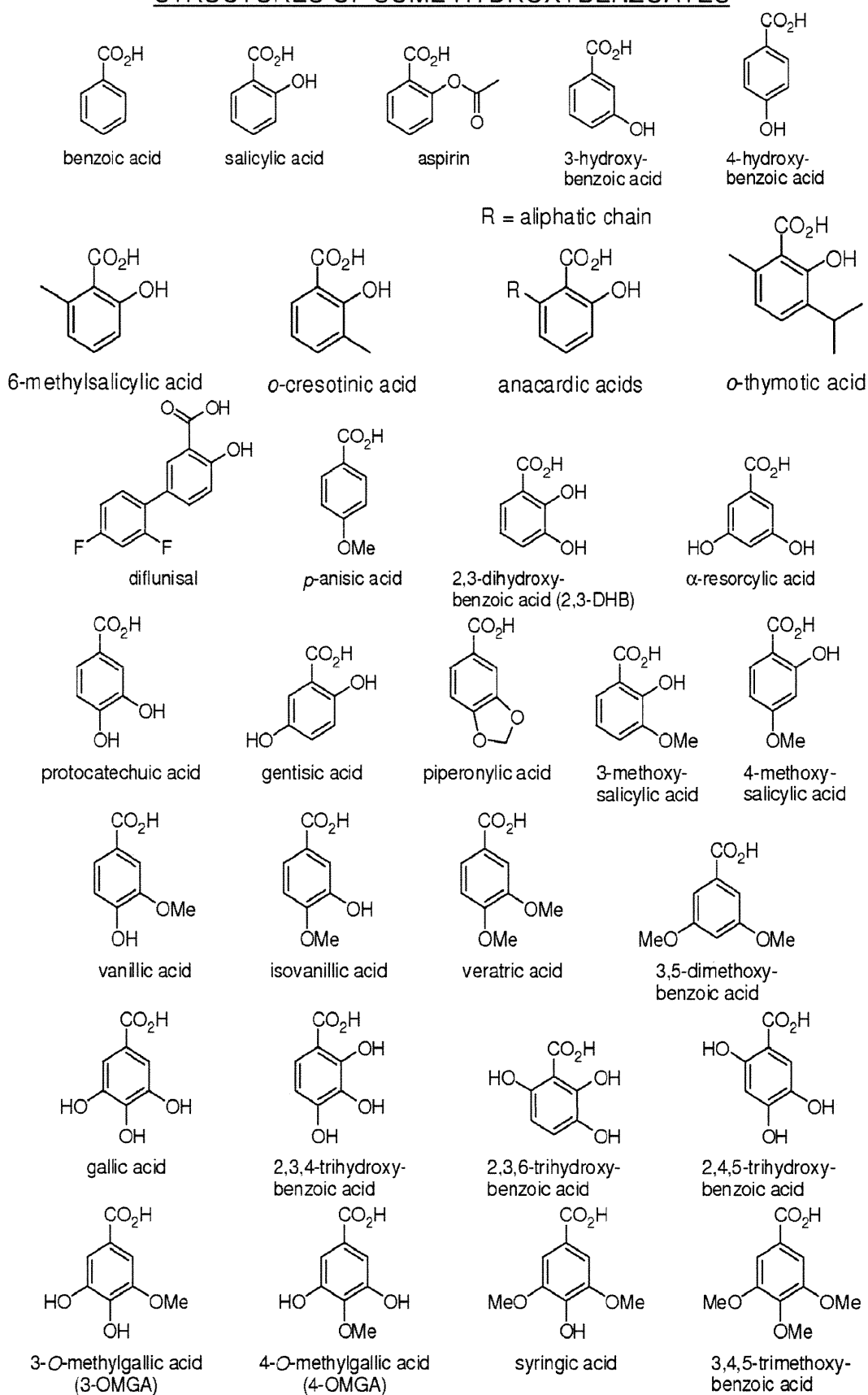
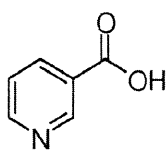
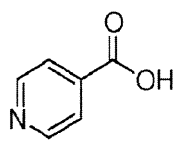


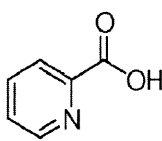
FIGURE 2
STRUCTURES OF SOME HETEROARYL CARBOXYLIC ACIDS



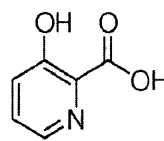
nicotinic acid



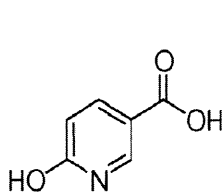
isonicotinic acid



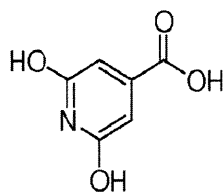
picolinic acid



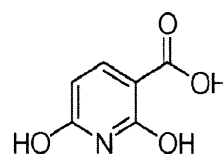
3-hydroxypicolinic acid



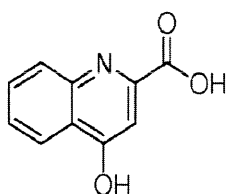
6-hydroxynicotinic acid



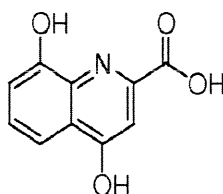
citrazinic acid



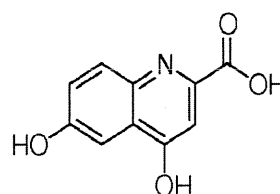
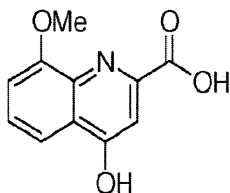
2,6-dihydroxynicotinic acid



kynurenic acid



xanthurenic acid

6-hydroxy-
kynurenic acid

8-methoxykynurenic acid

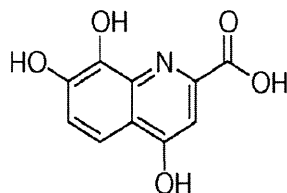
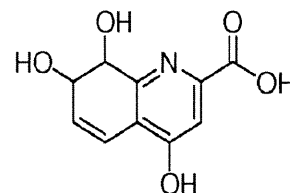
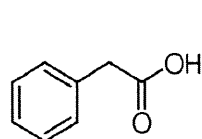
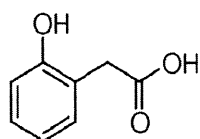
7,8-dihydroxy-
kynurenic acid7,8-dihydro-7,8-di-
hydroxykynurenic acid

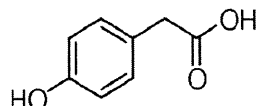
FIGURE 3
STRUCTURES OF SOME PHENYLACETATES



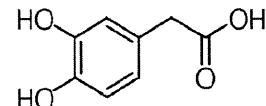
phenylacetic acid
(hydratropic acid)



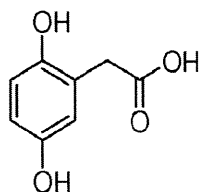
2-hydroxyphenyl-
acetic acid



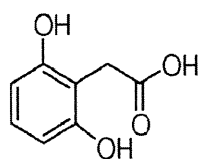
4-hydroxyphenyl-
acetic acid



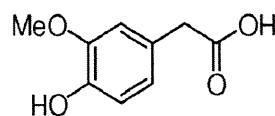
homoprotocatechuic acid



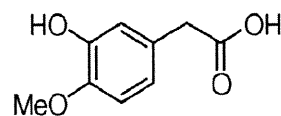
homogentisic acid



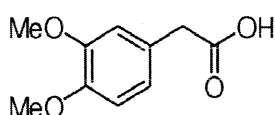
2,6-dihydroxy-
phenylacetic acid



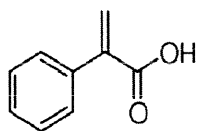
homovanillic acid



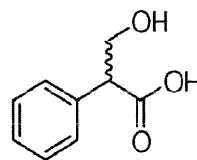
homoisovanillic acid



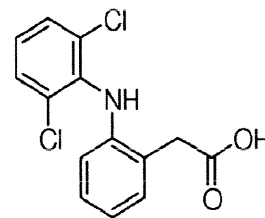
homoveratric acid



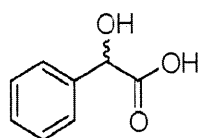
atropic acid



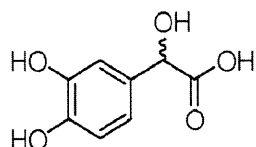
tropic acid



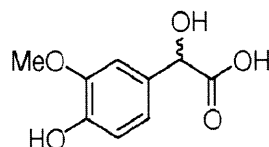
diclofenac



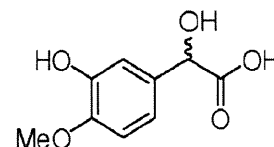
mandelic acid



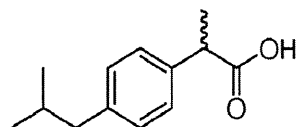
3,4-dihydroxymandelic acid



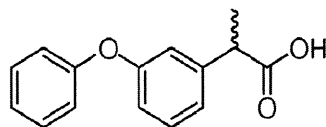
vanillylmandelic acid



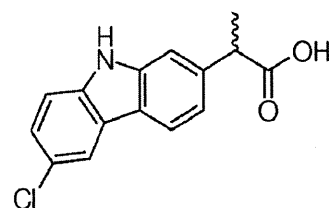
isovanillylmandelic acid



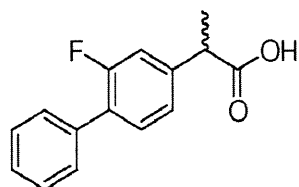
ibuprofen



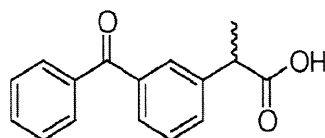
fenopropfen



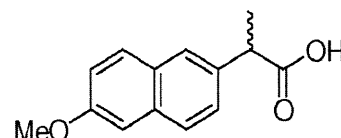
carprofen



flurbiprofen

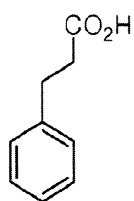


ketoprofen

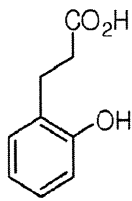


naproxen

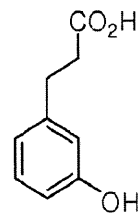
FIGURE 4
STRUCTURES OF SOME BENZYLACETATES



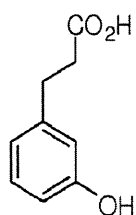
3-phenylpropanoic acid
 (benzylacetic acid)



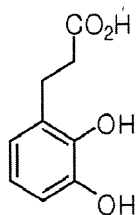
Melilotic acid



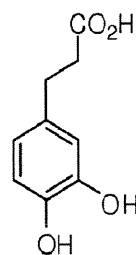
3-hydroxyphenyl-
 propanoic acid



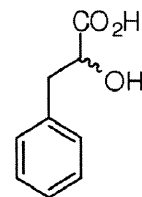
4-hydroxyphenyl-
 propanoic acid



2,3-dihydroxyphenyl-
 propanoic acid



3,4-dihydroxyphenyl-
 propanoic acid



Phenyllactic acid

FIGURE 5
STRUCTURES OF SOME CINNAMATES

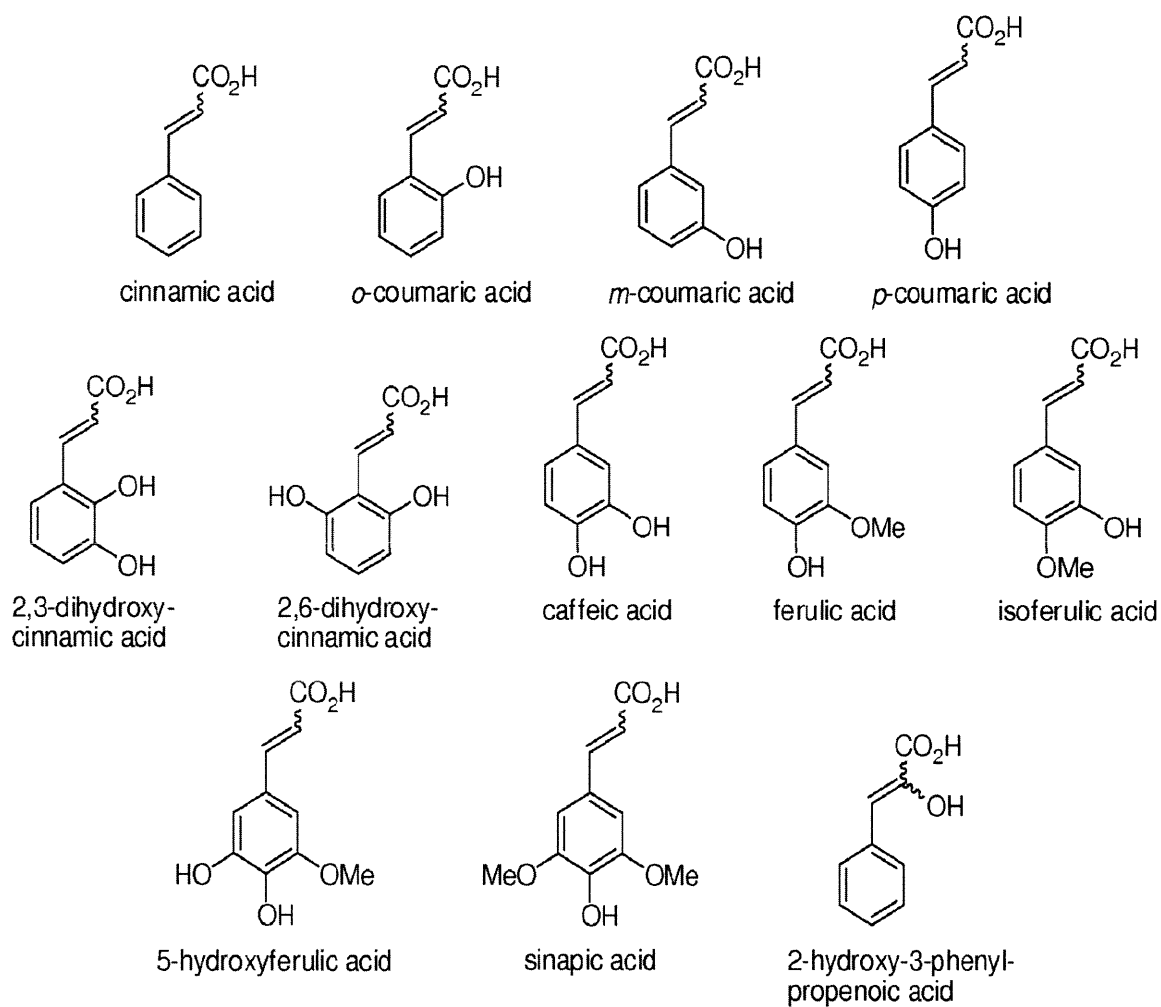
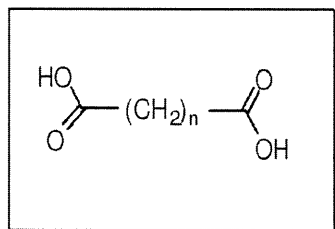
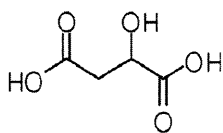


FIGURE 6
STRUCTURES OF SOME DICARBOXYLIC ACIDS

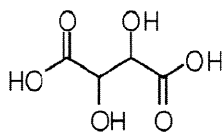


When

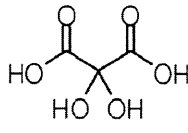
- $n = 0$ Oxalic acid
- $n = 1$ Malonic acid
- $n = 2$ Succinic acid
- $n = 3$ Glutaric acid
- $n = 4$ Adipic acid
- $n = 5$ Pimelic acid
- $n = 6$ Suberic acid
- $n = 7$ Azelaic acid
- $n = 8$ Sebacic acid



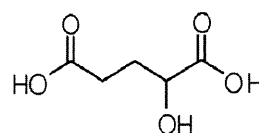
Malic acid



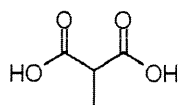
Tartaric acid



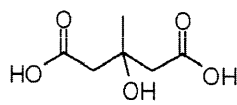
dihydroxymesoxalic acid



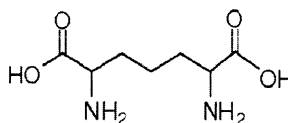
α -hydroxyglutaric acid



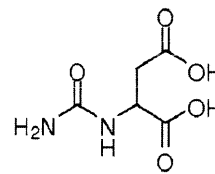
Methylmalonic acid



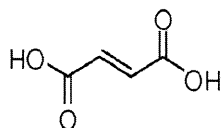
Meglitol



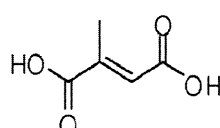
Diaminopimelic acid



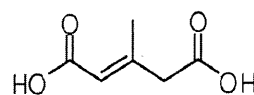
Carbamoyl aspartic acid



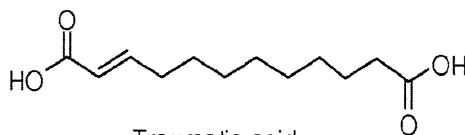
Fumaric acid (trans isomer)
Maleic acid (cis isomer)



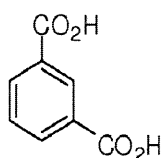
Mesaconic acid



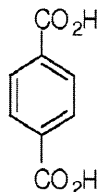
3-methylglutaconic acid



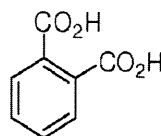
Traumatic acid



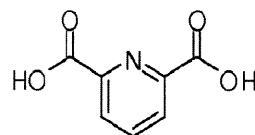
Isophthalic acid



Terephthalic acid

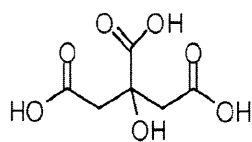


Phthalic acid

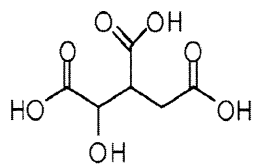


Dipicolinic acid

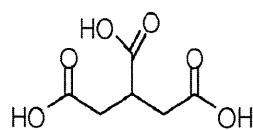
FIGURE 7
STRUCTURES OF SOME TRICARBOXYLIC ACIDS



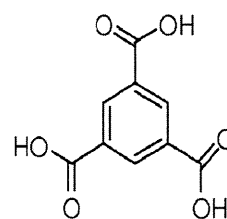
Citric acid



Isocitric acid

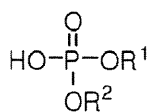


Carballylic acid

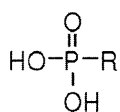


Trimesic acid

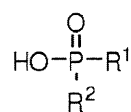
FIGURE 8
GENERAL STRUCTURES OF SOME INORGANIC OXOACIDS



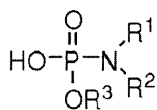
Phosphate



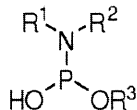
Phosphonate



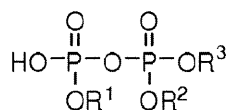
Phosphinate



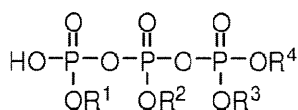
Phosphoramidate



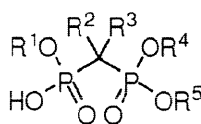
Phosphoramidite



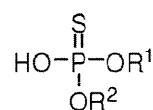
Diphosphate



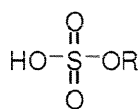
Triphosphate



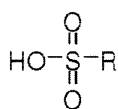
Biphosphonate



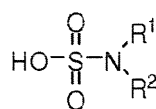
Phosphorothioate



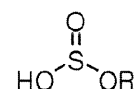
Sulfate



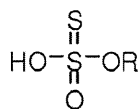
Sulfonate



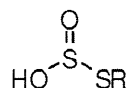
Sulfamate



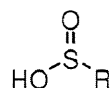
Sulfite



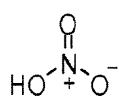
Thiosulfate



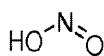
Thiosulfite



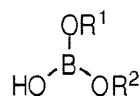
Sulfinate



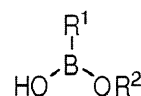
Nitrate



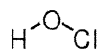
Nitrite



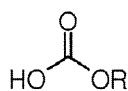
Borate



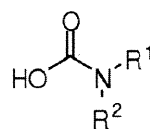
Boronate



Hypochlorite



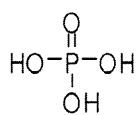
Carbonate



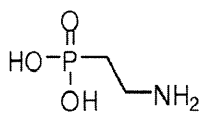
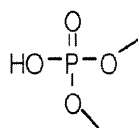
Carbamate

R, R¹, R², R³, R⁴, R⁵ = alkyl or aryl.

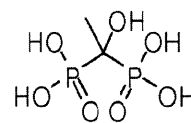
FIGURE 9
STRUCTURES OF SOME INORGANIC OXOACID DERIVATIVES



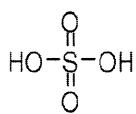
Phosphate

2-Aminoethyl-
phosphonate

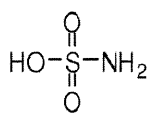
Dimethylphosphate



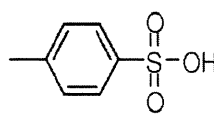
Etidronate



Sulfate

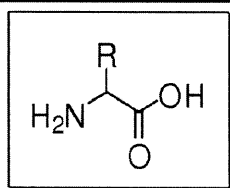


Sulfamate



Tosylate

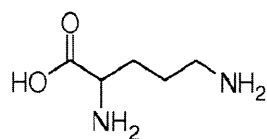
FIGURE 10.
GENERAL STRUCTURES OF THE STANDARD AMINO ACIDS



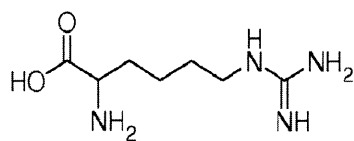
R =

-H	Glycine		Histidine
-CH ₃	Alanine		Serine
	Phenylalanine		Cysteine
	Tyrosine		Threonine
	Aspartic acid		Methionine
	Glutamic acid		Valine
	Asparagine		Leucine
	Glutamine		Isoleucine
	Lysine		Tryptophan
	Arginine		Proline
	Selenocysteine		Pyrrolysine

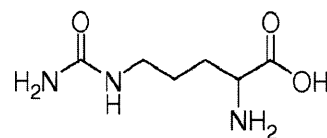
FIGURE 11.
STRUCTURES OF SOME NON-STANDARD AMINO ACIDS



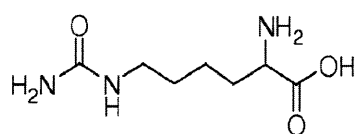
Ornithine



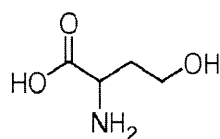
Homocarginine



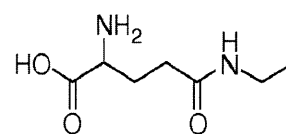
Citrulline



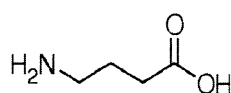
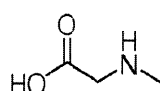
Homocitrulline



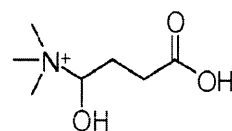
Homoserine



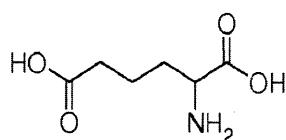
Theanine

 γ -Aminobutyric acid

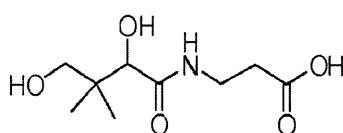
Sarcosine



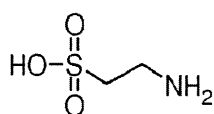
Carnitine



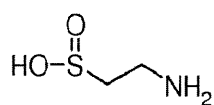
2-Aminoadipic acid



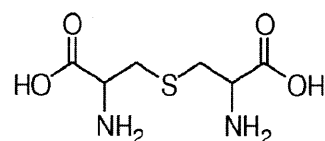
Pantothenic acid



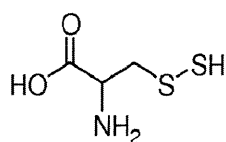
Taurine



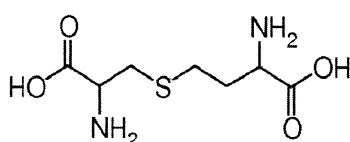
Hypotaurine



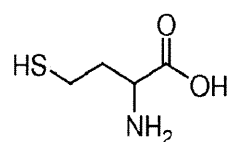
Lanthionine



Thiocysteine

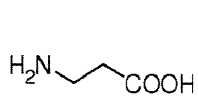
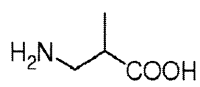
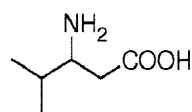
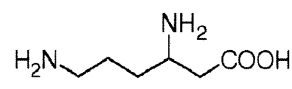
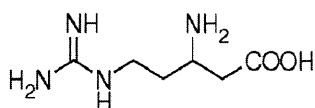
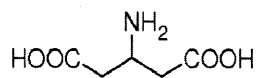
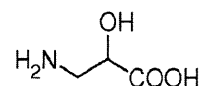


Cystathionine

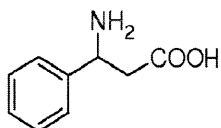
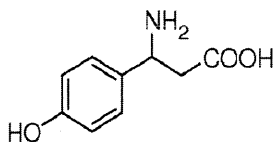
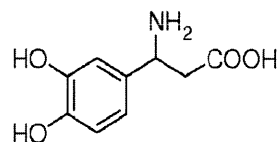
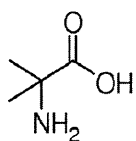


Homocysteine

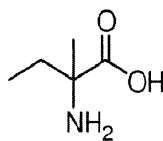
FIGURE 11. (CONT.)

 β -Alanine β -Aminoisobutyric acid β -Leucine β -Lysine β -Arginine β -Glutamate

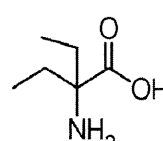
Isoserine

 β -Phenylalanine β -Tyrosine β -Dopa

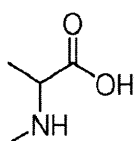
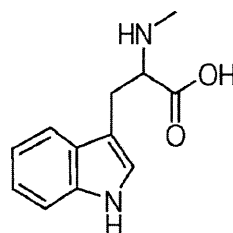
2-Aminoisobutyric acid



Isovaline

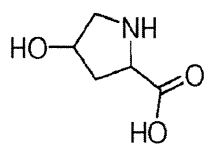


Di-n-ethylglycine

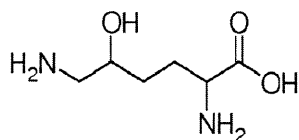
*N*-Methyl-alanine

L-Abrine

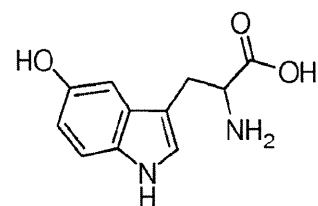
FIGURE 11. (CONT.)



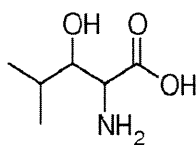
4-Hydroxyproline



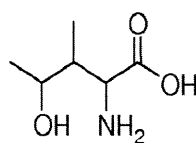
5-Hydroxylysine



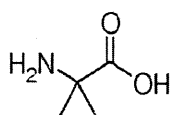
5-Hydroxy-tryptophan



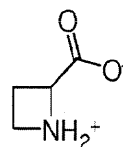
3-Hydroxyleucine



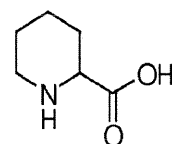
4-Hydroxyisoleucine



1-Aminocyclopropyl-1-carboxylic acid

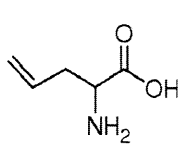


Azetidine-2-carboxylic acid

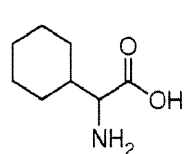


Piptecolic acid

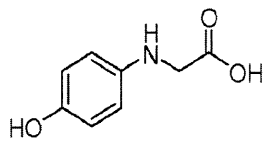
FIGURE 12.
STRUCTURES OF SOME SYNTHETIC AMINO ACIDS



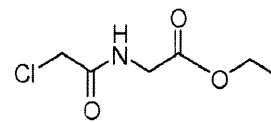
Allylglycine



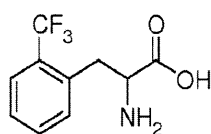
Cyclohexylglycine



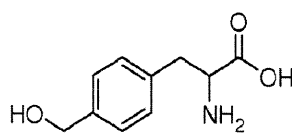
N-(4-Hydroxyphenyl)glycine



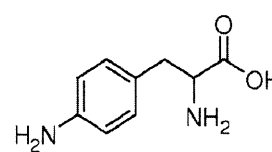
N-(Chloroacetyl)glycine ethyl ester



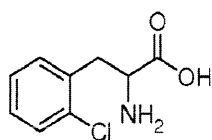
2-(Trifluoromethyl)-phenylalanine



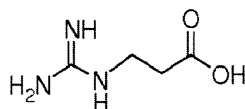
4-(Hydroxymethyl)-phenylalanine



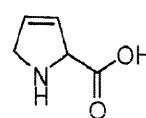
4-Amino-phenylalanine



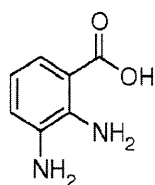
2-Chlorophenylglycine



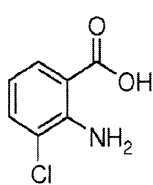
3-Guanidinopropionic acid



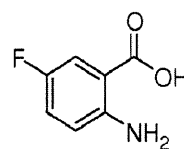
3,4-Dehydro-proline



2,3-Diaminobenzoic acid

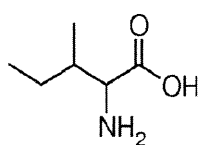


2-Amino-3-chlorobenzoic acid

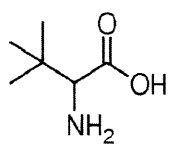


2-Amino-5-fluorobenzoic acid

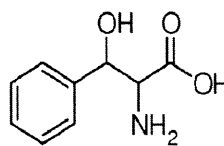
FIGURE 12. (CONT.)



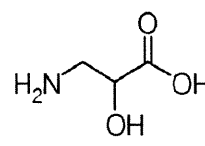
Allo-isoleucine



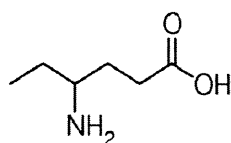
tert-Leucine



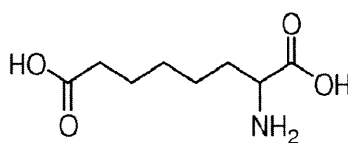
3-Phenylserine



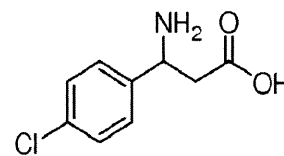
Isoserine



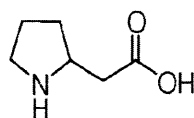
3-Aminopentanoic acid



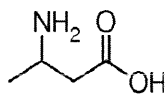
2-Amino-octanedioic acid



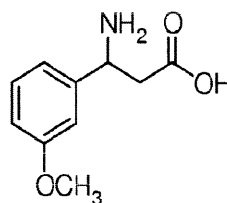
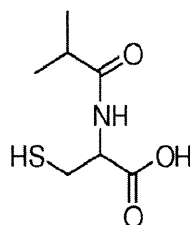
4-Chloro-β-phenylalanine



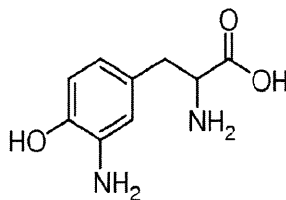
β-Homoproline



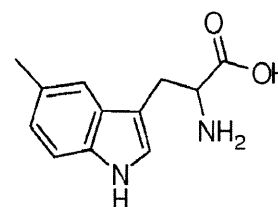
β-Homoalanine

3-Amino-3-(3-methoxyphenyl)
propionic acid

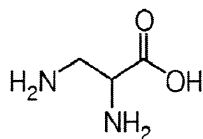
N-Isobutyryl-cysteine



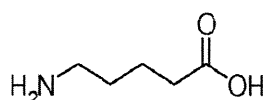
3-Amino-tyrosine



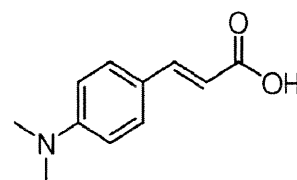
5-Methyl-tryptophan



2,3-Diaminopropionic Acid



5-Aminovaleric acid



4-(Dimethylamino)cinnamic acid

FIGURE 13

Oral PK Curves

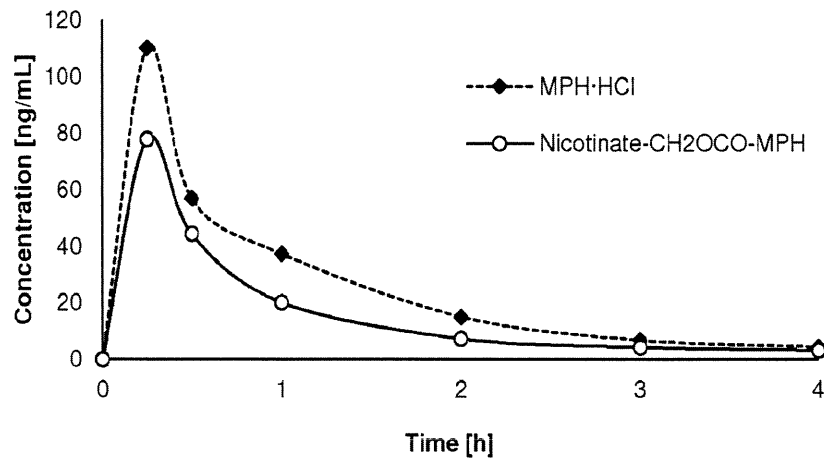


FIGURE 14

Oral PK Curves

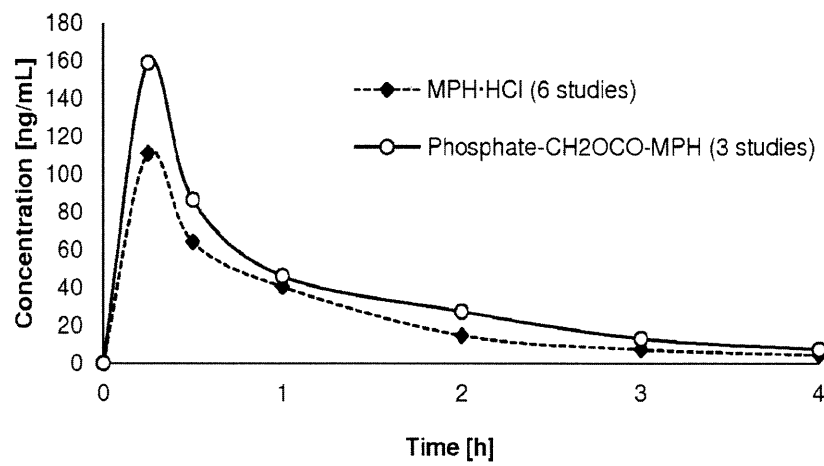


FIGURE 15

Oral PK Curves

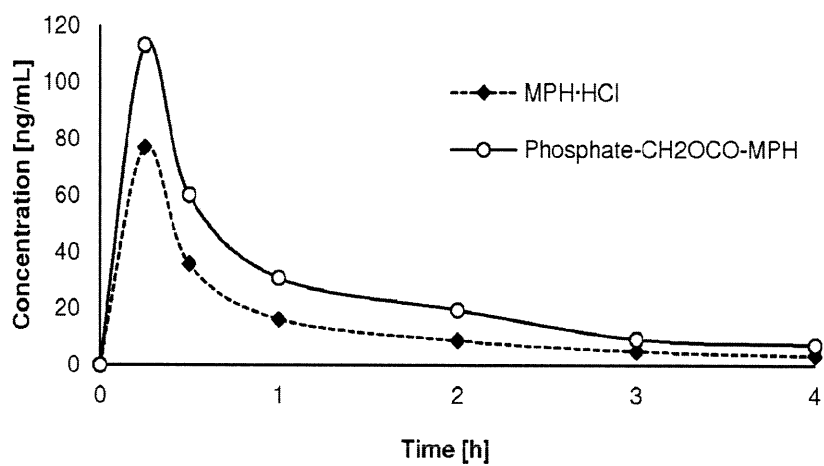


FIGURE 16

Oral PK Curves

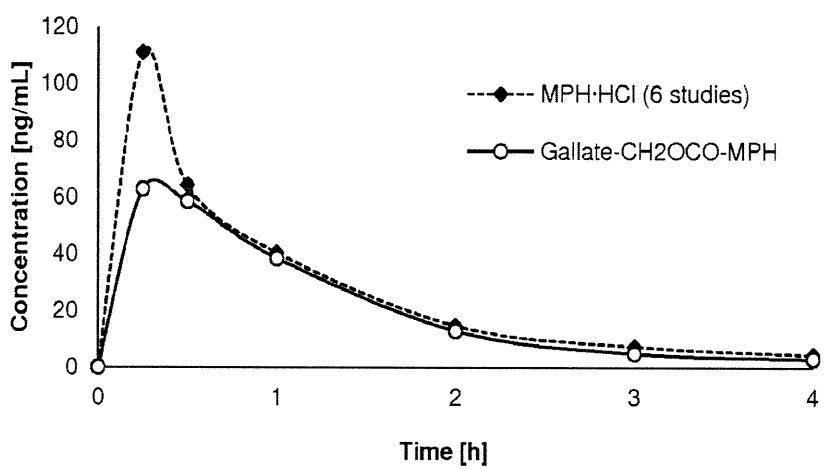


FIGURE 17

Oral PK Curves

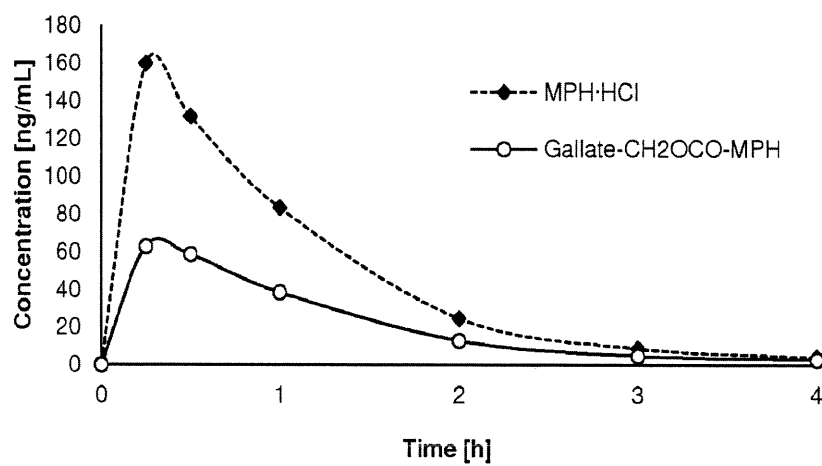


FIGURE 18

Oral PK Curves

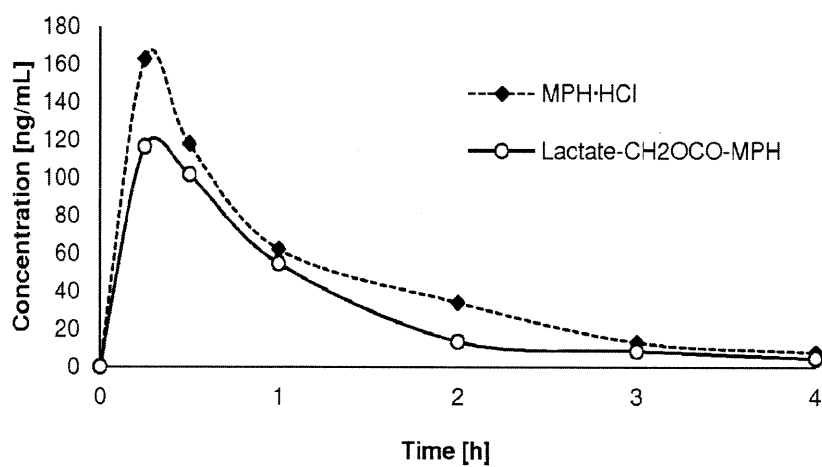


FIGURE 19

Oral PK Curves

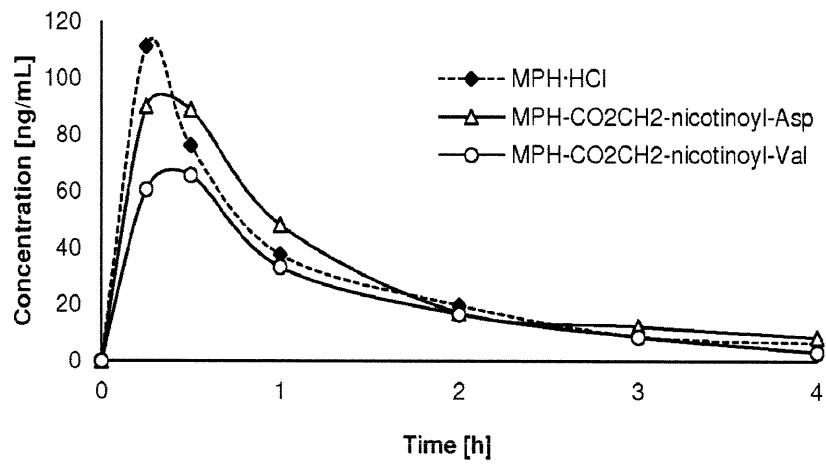


FIGURE 20

Oral PK Curves

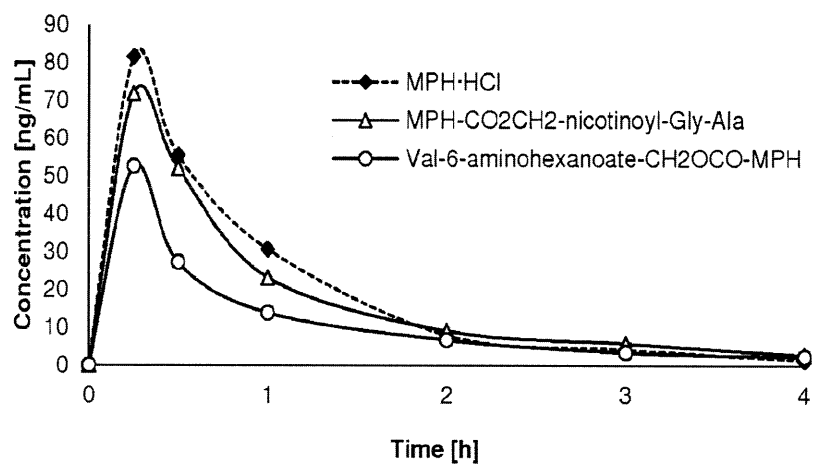


FIGURE 21

Oral PK Curves

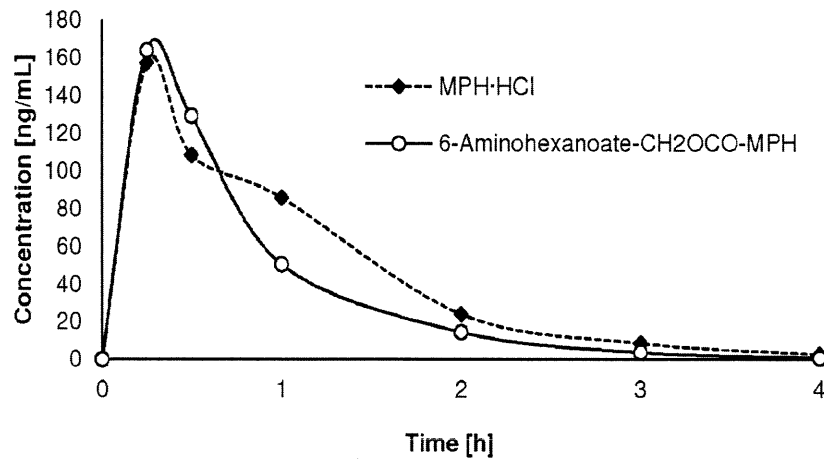


FIGURE 22

Oral PK Curves

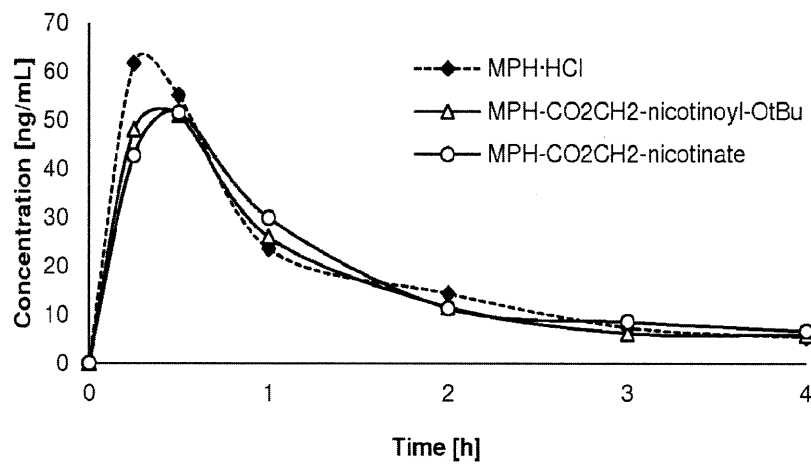


FIGURE 23

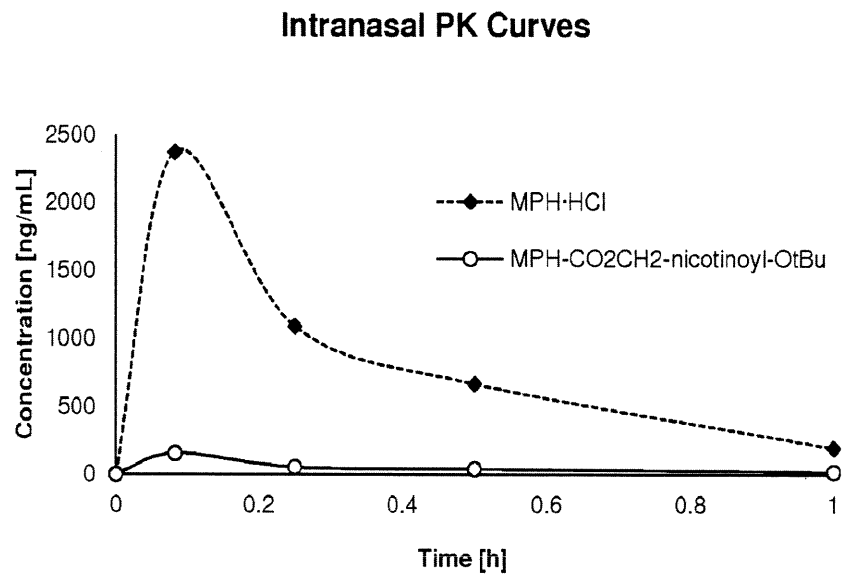


FIGURE 24

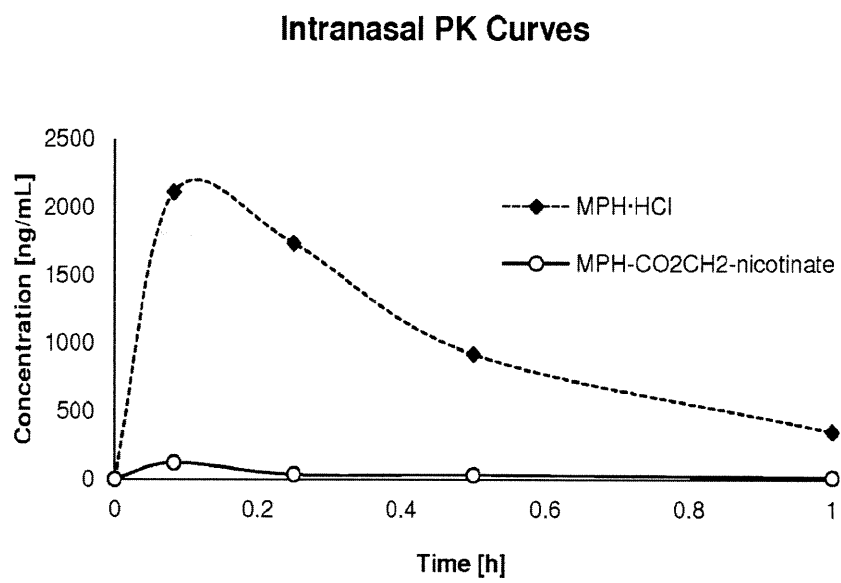


FIGURE 25

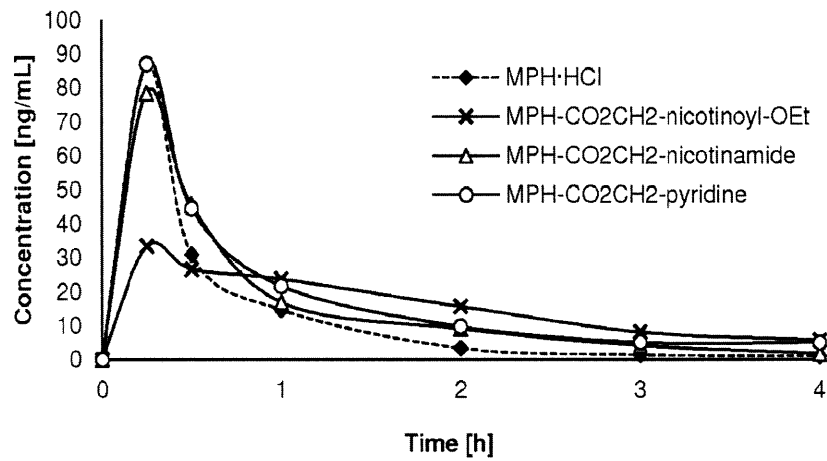
Oral PK Curves

FIGURE 26

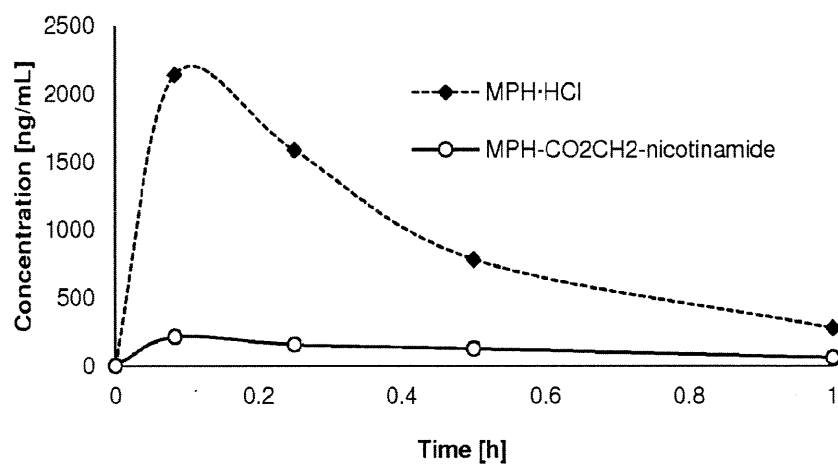
Intranasal PK Curves

FIGURE 27

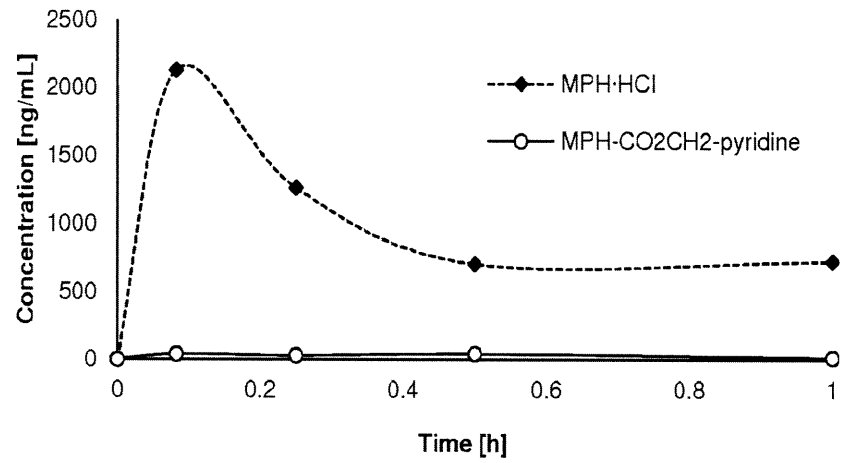
Intranasal PK Curves

FIGURE 28

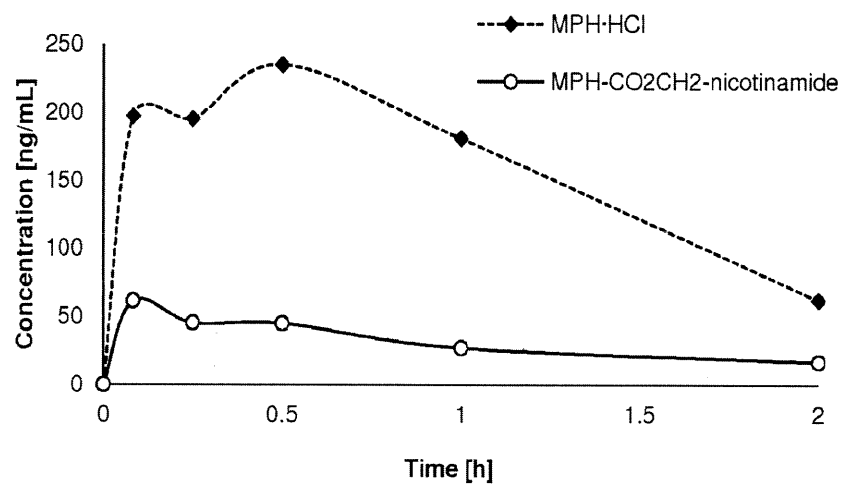
Intravenous PK Curves

FIGURE 29

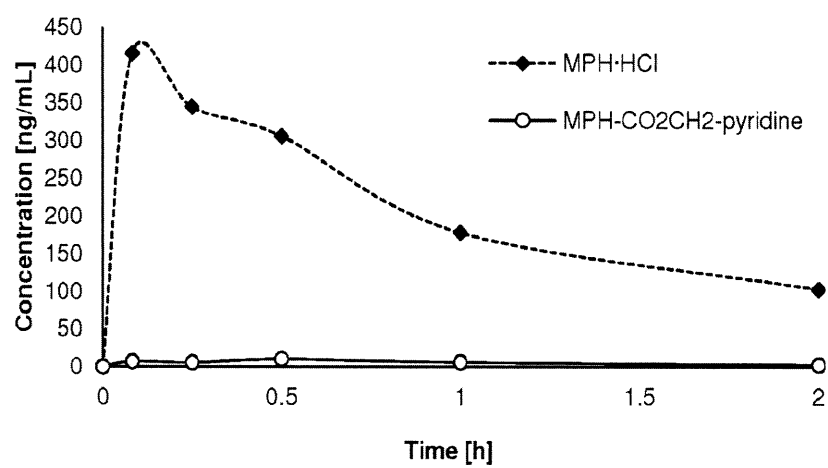
Intravenous PK Curves

FIGURE 30

Oral PK Curves