

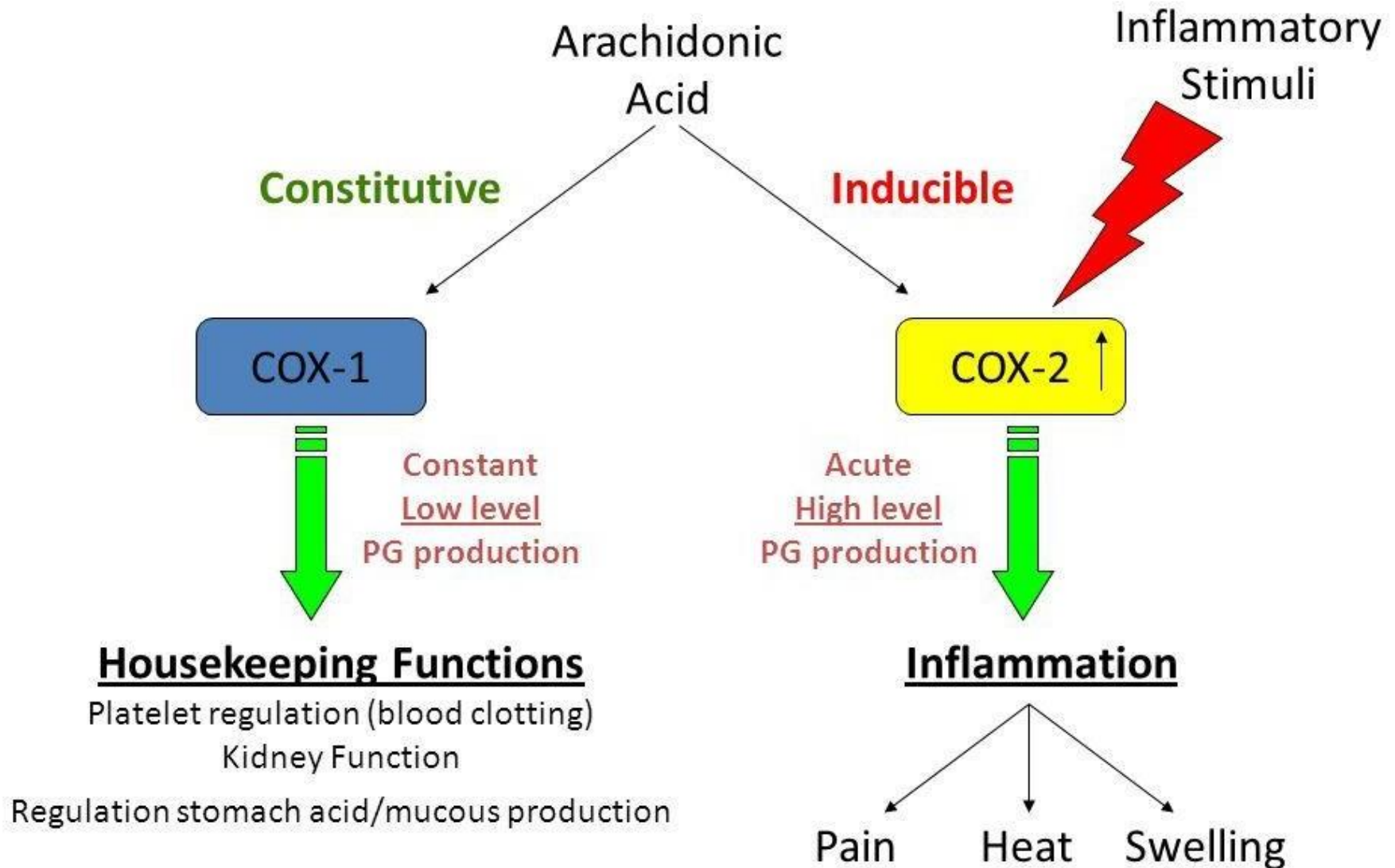
Nonsteroidal Anti-inflammatory Drugs (NSAIDs) - I

**INTRODUCTION TO
PHARMACEUTICAL CHEMISTRY**

Nonsteroidal anti-inflammatory drugs (NSAIDs) are usually used for

- reduce pain
- decrease fever
- decrease inflammation

Distinct physiological roles of COX-1 and COX-2



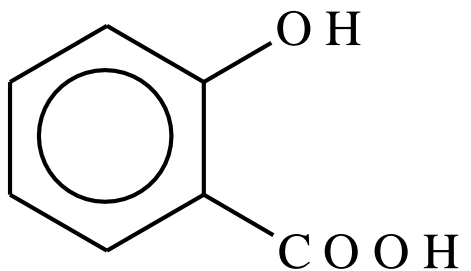
CLASSIFICATION OF NSAIDs

SALICYLATES

- . The salicylates are derivatives of 2-hydroxybenzoic acid (salicylic acid).

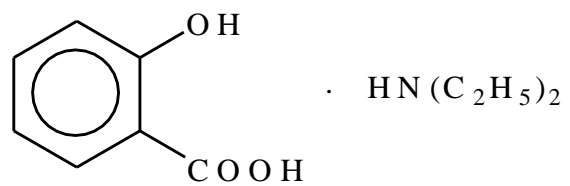
SALICYLIC ACID DERIVATIVES

SALICYLIC ACID

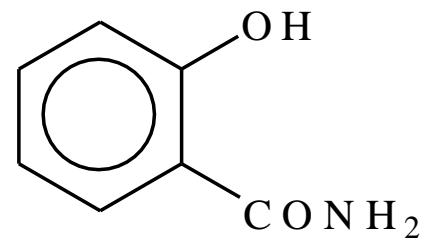


(o-Hydroxy benzoic acid)

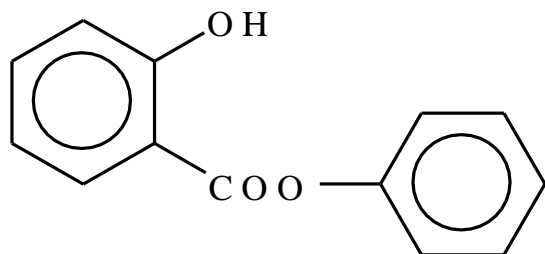
Diethylamine Salicylate



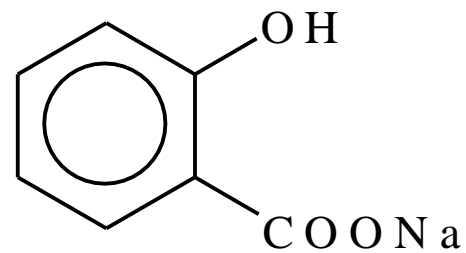
Salicylamide



Phenyl Salicylate

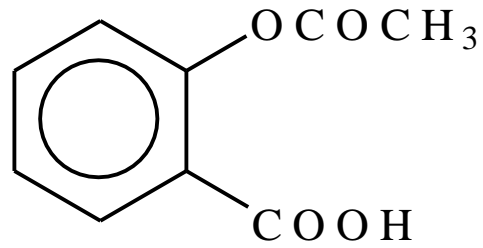


Sodium Salicylate

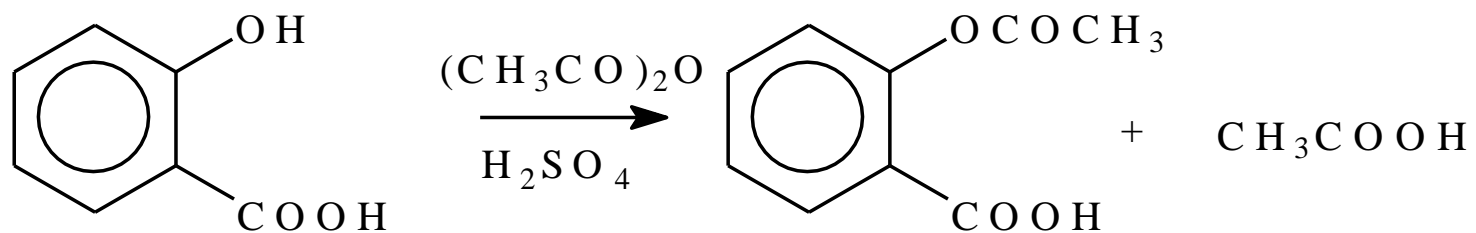


Acetylsalicylic Acid

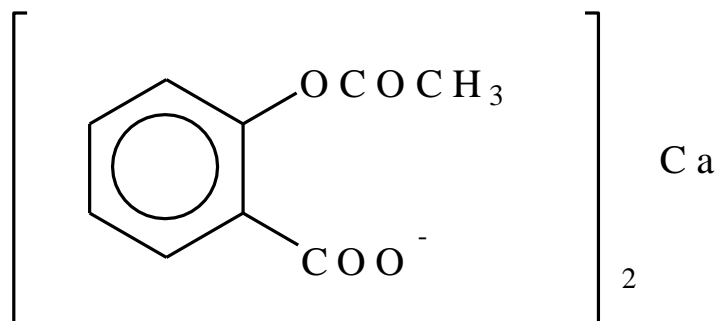
ASPIRIN®



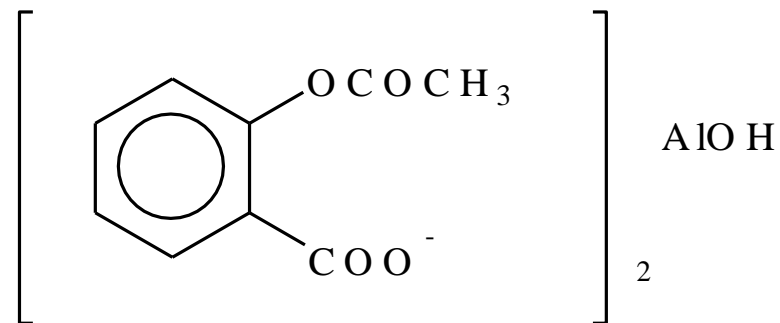
Synthesis of Aspirin



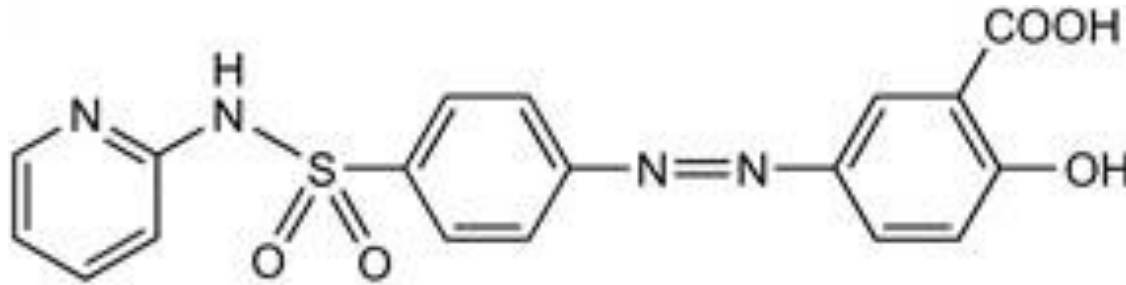
Calcium Acetyl Salicylate



Aluminum Acetyl Salicylate

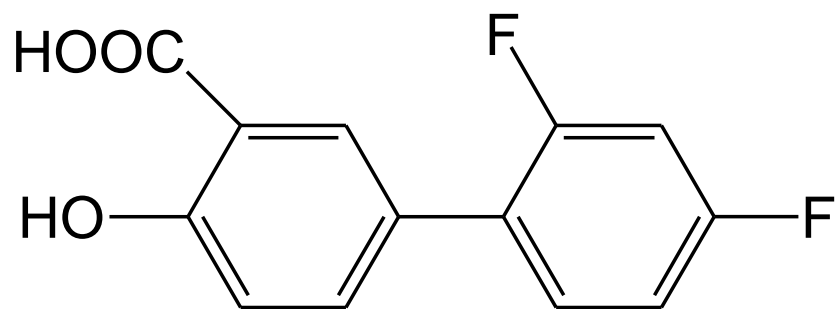


Sulfasalazine



2-hydroxy-5-[2-{4-[(pyridin-2-yl)sulfamoyl]phenyl}diazen-1-yl]benzoic acid

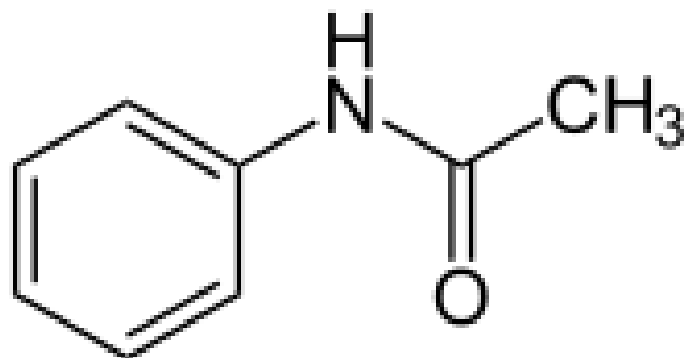
Diflunisal



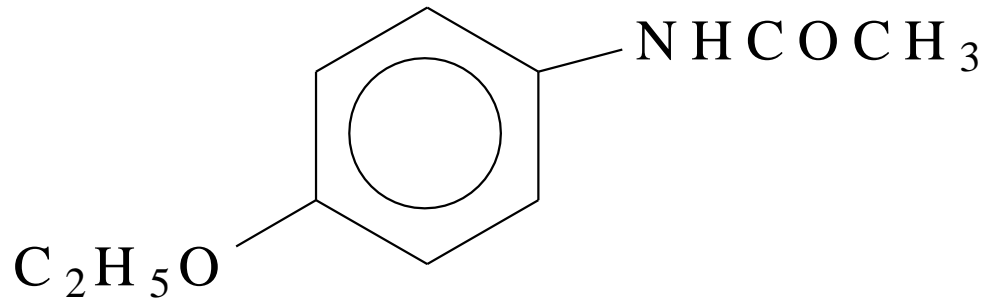
2-hydroxy-5-(2,4-diflorophenyl)benzoic acid

ANILIN and p-AMINOPHENOL DERIVATIVES

Acetanilide

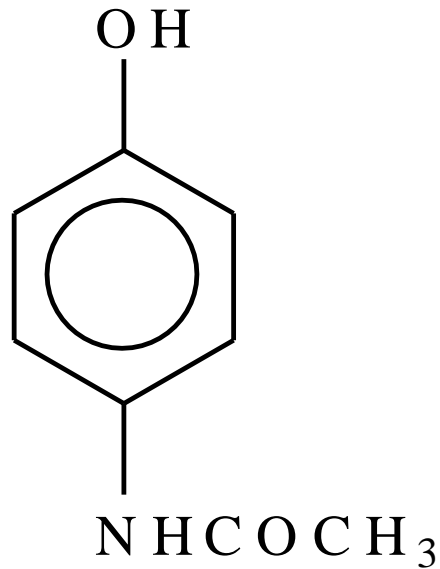


Phenacetin



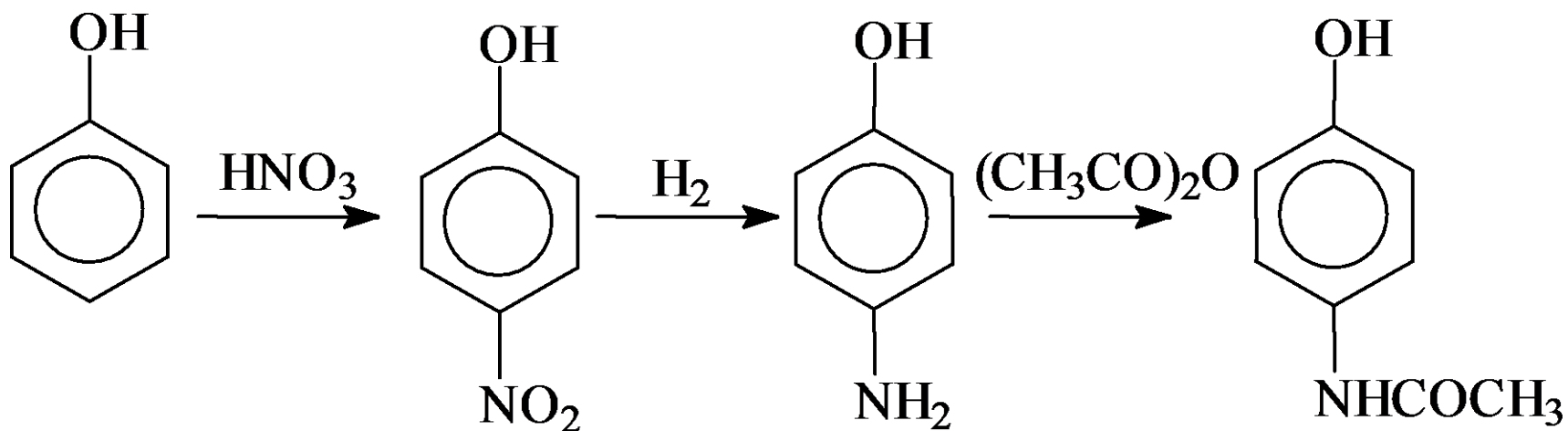
1)N-(4-Ethoxyphenyl)acetamide

Acetaminophen (Paracetamol)



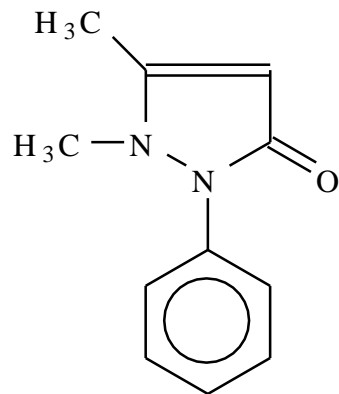
N-(4-hydroxyphenyl)ethanamide

Synthesis of Acetaminophen



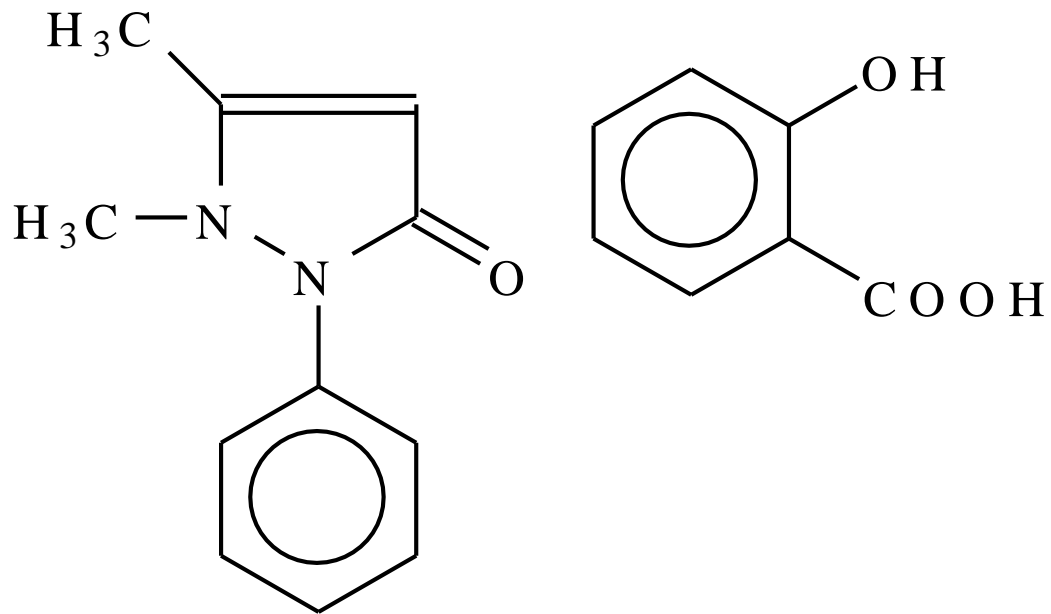
PYRAZOLE DERIVATIVES

Antipyrine (Phenazone)

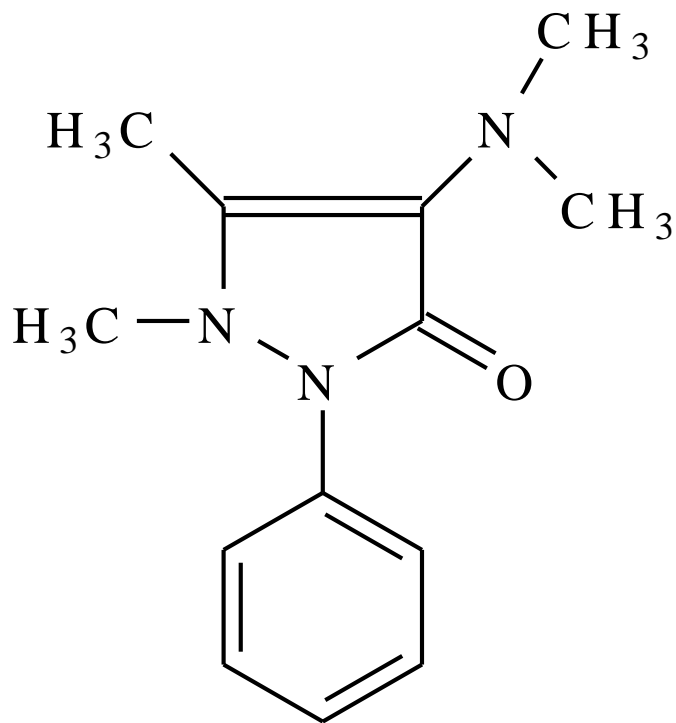


1) 2,3-Dimethyl-1-phenyl-3-pyrazoline-5-one

Antipyrine Salicylate

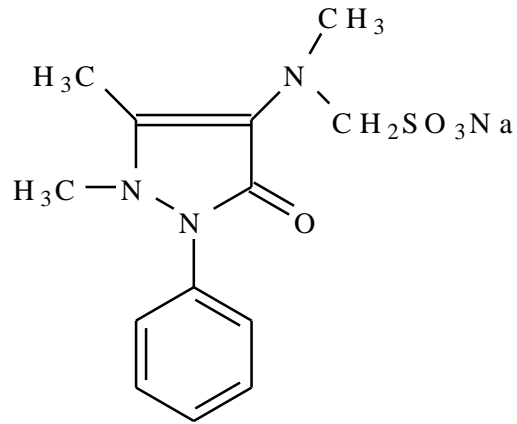


Aminopyrine



4-Dimethylamino-2,3-dimethyl-1-phenyl-3-pyrazoline-5-one

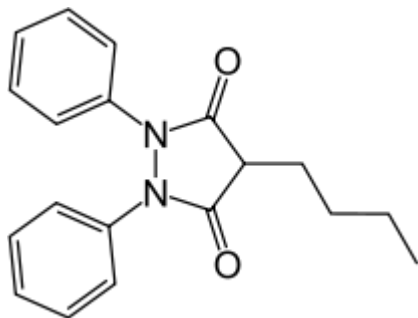
Dipyrone (Metamizole) NOVALGIN®



1) Sodium 1-phenyl-2,3-dimethyl-3-pyrazoline-5-oxo-4-methylamino-methanesulphonate

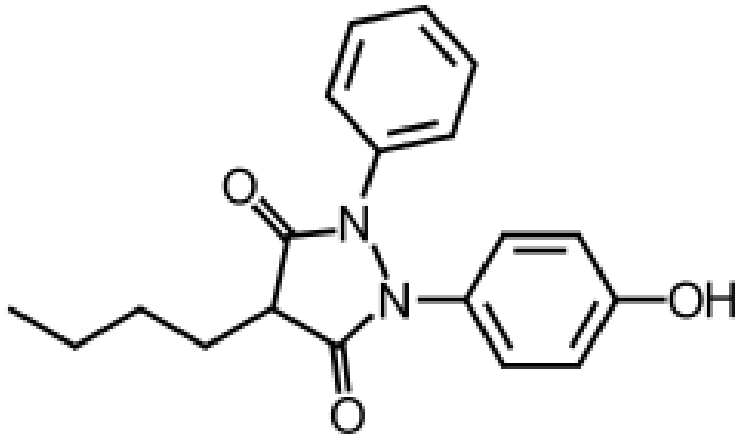
PYRAZOLYDINE DERIVATIVES

Phenylbutazone



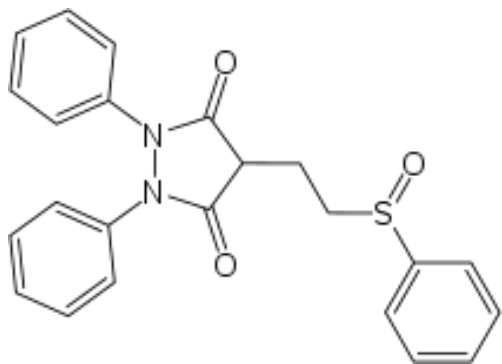
4-Butyl-1,2-diphenyl-pyrazolidine-3,5-dione

Oxyphenbutazone



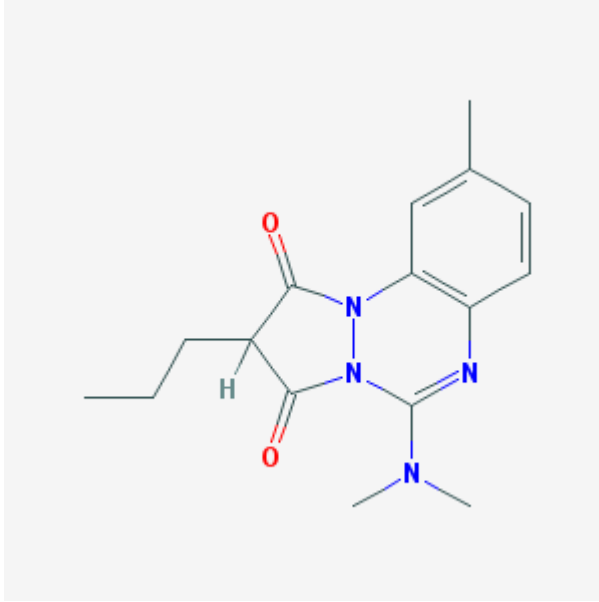
(*RS*)-4-butyl-1-(4-hydroxyphenyl)-
2-phenylpyrazolidine-3,5-dione

Sulfinpyrazone



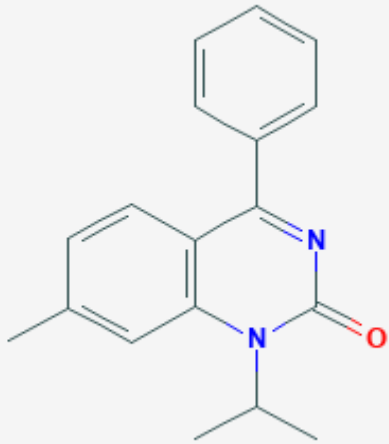
1,2-diphenyl-4-[2-(phenylsulfinyl)ethyl]pyrazolidine-3,5-dione

Apazone



5-(dimethylamino)-9-methyl-2-propylpyrazolo[1,2-a][1,2,4]benzotriazine-1,3-dione

Proquazone



1-isopropyl-7-methyl-4-phenylquinazolin-2(1*H*)-one