| Selected Xanthines (from web: http://en.wikipedia.org/wiki/Xanthine) |
| --- |
| Name | R1 | R2 | R3 | R8 | [IUPAC nomenclature](http://en.wikipedia.org/wiki/IUPAC_nomenclature) | Found In |
| Xanthine | H | H | H | H | 3,7-dihydro-purine-2,6-dione | plants, animals |
| [Caffeine](http://en.wikipedia.org/wiki/Caffeine) | [CH3](http://en.wikipedia.org/wiki/Methyl) | [CH3](http://en.wikipedia.org/wiki/Methyl) | [CH3](http://en.wikipedia.org/wiki/Methyl) | H | 1,3,7-trimethyl-1H-purine-2,6(3H,7H)-dione | [Coffee](http://en.wikipedia.org/wiki/Coffee), [Guarana](http://en.wikipedia.org/wiki/Guarana), [Yerba mate](http://en.wikipedia.org/wiki/Yerba_mate), [Tea](http://en.wikipedia.org/wiki/Tea), [Kola](http://en.wikipedia.org/wiki/Kola_nut) |
| [Theobromine](http://en.wikipedia.org/wiki/Theobromine) | H | [CH3](http://en.wikipedia.org/wiki/Methyl) | [CH3](http://en.wikipedia.org/wiki/Methyl) | H | 3,7-dihydro-3,7-dimethyl-1H-purine-2,6-dione | [Chocolate](http://en.wikipedia.org/wiki/Chocolate), [Yerba mate](http://en.wikipedia.org/wiki/Yerba_mate) |
| [Theophylline](http://en.wikipedia.org/wiki/Theophylline) | [CH3](http://en.wikipedia.org/wiki/Methyl) | [CH3](http://en.wikipedia.org/wiki/Methyl) | H | H | 1,3-dimethyl-7H-purine-2,6-dione | [Tea](http://en.wikipedia.org/wiki/Tea), [chocolate](http://en.wikipedia.org/wiki/Chocolate), [Yerba mate](http://en.wikipedia.org/wiki/Yerba_mate) |
| [Paraxanthine](http://en.wikipedia.org/wiki/Paraxanthine) | [CH3](http://en.wikipedia.org/wiki/Methyl) | H | [CH3](http://en.wikipedia.org/wiki/Methyl) | H | 1,7-dimethyl-7H-purine-2,6-dione | Animals that have consumed caffeine |
| [8-Chlorotheophylline](http://en.wikipedia.org/wiki/8-Chlorotheophylline) | [CH3](http://en.wikipedia.org/wiki/Methyl) | [CH3](http://en.wikipedia.org/wiki/Methyl) | H | Cl |  | [Dimenhydrinate](http://en.wikipedia.org/wiki/Dimenhydrinate) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1** | **3** | **7** | **Molecule** | **Interest** |
| - | - | - | Xanthine | Purine base found in most human body tissues |
| + | - | - | 1-Methylxanthine | ? |
| - | + | - | 3-Methylxanthine | ? |
| - | - | + | 7-Methylxanthine | Works against myopia in animals (short-sightedness) |
| + | + | - | Theophylline | Pharm-Asthma |
| + | - | + | Paraxanthine | CNS Stimulant (like caffeine) |
| - | + | + | Theobromine | Chocolate/Diet Pills/Vasodilator |
| + | + | + | Caffeine | CNS Stimulant |

