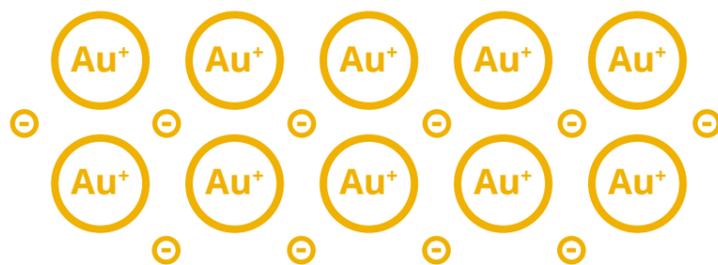


GOLD, FRANKINCENSE & MYRRH

These three substances are brought as gifts by the Three Wise Men in the Christmas story - in this graphic, we examine the uses and chemistry behind them.



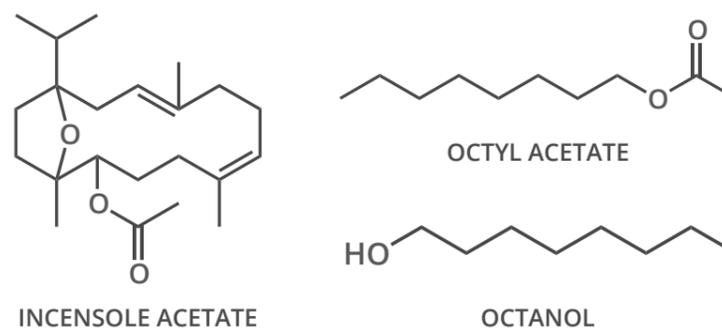
Gold



Electron Configuration: $[\text{Xe}]4f^{14}5d^{10}6s^1$

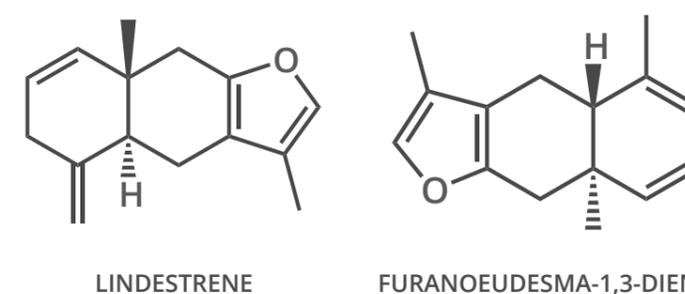
Gold's structure consists of a lattice of cations with a 'sea' of delocalised electrons. Its golden colour is due to it having the correct energy difference between its 5d and 6s electron subshells to absorb photons of blue light.

Frankincense



Frankincense resin is used as incense, with its smell the result of various compounds produced when it is burned. These include those shown above, as well as several terpenoid compounds. Research suggests that the compound incensole acetate could help alleviate anxiety & depression.

Myrrh



Myrrh resin, like frankincense, can be used in incense & perfumes, though it also has medicinal applications. Its aroma comes from a family of compounds called furanosesquiterpenes. Animal studies have suggested some compounds in myrrh can have an analgesic effect.

