

4.7

FINDING NEW DRUGS

Possible new sources of medicines

There is always a constant need for new drugs to be discovered, because new diseases are always emerging and many diseases still remain without any effective treatment. Also, many bacterial infections (and otherwise) are evolving (see 5.7 Evolution) and so the use of antibiotics is becoming less effective to new strains: so new medicines must be developed.

There are a number of key ways in which new medicinal drugs are discovered:

- *accidentally* – for example, Fleming’s accidental discovery of penicillin
- *from traditional medicines* – many countries, namely India and China, still rely on more traditional medicines, including herbal remedies, and even in the UK, many modern medicines exist due to the traditional medicines which they have been based on
- *observation of wildlife* – from observing animals using self-medicating techniques, such as birds lining their nests with medicinal leaves to protect their chicks from blood-sucking mites; chimpanzees swallowing leaves folded in a particular way to remove parasites from their digestive tracts and various animals rubbing citrus oils on their coats as insecticides and as antiseptics to prevent insect bites and infections
- *research* – modern research is used to search for new drugs and treatments; scientists may use animal behaviours and previous traditional medicines as the basis for scientific drug research

Many new drugs are obtained from plants. For example, scientists conduct research into plants which allows them to isolate active ingredients to use as treatments. The search for medicinal plants takes place largely in tropical rainforests, as those species are much more abundant and the range of species there is much more diverse than anywhere else on the planet.

However, research into tropical rainforest species becomes more and more difficult as time goes on, for multiple reasons. These can include deforestation, constructional development and global warming, all of which cause a loss of **biodiversity** in both plants and animals, making the search for drugs more difficult.