

Extraction of DNA

Introduction

All living organisms are composed of cells that contain DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) **within** the fourth level of organization. The two acids contain the hereditary information of the cell. In eukaryotic cells, like humans, animals and mushrooms, DNA chromosomes **is** contained within a membrane bound **nucleus**. In prokaryotic cells, like bacteria, DNA is in a circular form and there is no nucleus. Each species has a basic number of chromosomes, the average human have 46 (23 pairs), dogs have 78, cats 38, horses 64, sheep 54, and 14 and amphibians 22. Plant chromosomes are called **chromosomes**, 1 chromosome comes from each parent during fertilization. The parental genome contributes half of the chromosome content of the zygote and are called **haploid** (2n).

Many plants, though, don't always follow the haplo-diploid rule. Wheat and strawberries have 14 chromosomes (2n = 28). Though wheat contains a wheat and grasses have a related near species and hybrid of wheat species. These species include **triticale** (4n), **hexaploid** (6n), **octaploid** (8n) and **decaploid** (10n). In general these polyploid species are more robust plants with larger fruits, one of the primary reasons they have been selected for. Why grow two plants when you can grow bigger, healthier ones in the same space? And opposite strawberries will multiply the mass of the genome than?

The most common cultured strawberry, Fragaria vesca, has **octaploid** (8n) chromosomes. This polyploid genome occurred as a product of a polyploid event, to increase the complexity of its DNA, although it was not a direct product, then the seeds are further lower that are found on the outside of the berry, ultimately follow what to increase the seed gene by making them are genetically to be used. One function is to increase the amount of DNA, but it is the two large haploid chromosomes number (2n). Recent research to increase the size and complexity of genomes has resulted in the observation of **tetraploid** (4n) chromosomes and **hexaploid** (6n) chromosomes.

Biochemistry of DNA

Eukaryotic chromosomes are composed primarily of information-carrying **codons** and their protective proteins. DNA are packaged from which all of the "stuff" of an individual is made. It is the single strand for environmental and the chromosomes as how these elements are put together to make each individual organism. While organisms have many similarities and "share" the same DNA information, each gene is coded specifically characteristic to DNA code. This entire code has been determined in many organisms, including humans (see the Human Genome Project) but most of the code still has not been deciphered. Scientists know what the parts are, they just don't know what the parts code, other than a couple to know or practical or abstract.

The structure of DNA is that of a **twisted ladder**, called a **double helix**. The sides of the ladder are the DNA backbone of alternating sugar and phosphate molecules. The rungs of the ladder are composed of pairs of nitrogenous bases joined by hydrogen bonds. Adenine (A) and guanine (G) are **purines** (2 ring molecules), cytosine (C) and thymine (T) are **pyrimidines** (1 ring molecules). Each ladder rung is made up of one purine paired with a pyrimidine, but only in a certain manner. Adenine and thymine can bond together with 2 hydrogen bonds while cytosine and guanine can pair up with three hydrogen bonds. Adenine cannot pair with either cytosine (C) or thymine (T) and guanine cannot pair with cytosine (C) or thymine (T) together. To help remember the pairing, the correct letters (C) and (G) go together and the correct letters (A) and (T) go together. As a result of the robust bond with a correct letter.