

Great news for Chocolate Lovers

Chocolate may soon become even more irresistible thanks to a group of scientists who have pieced together the genetic code of the cacao tree.

It is hoped the DNA sequence will lead to chocolate that is healthier and tastier, and increase the sustainability of cacao crops and benefit millions of farmers.

The US researchers worked with a variety of cacao called Criollo that produces the world's best chocolate.

It was domesticated by the Maya people of Central America 3,000 years ago but is seldom grown in its pure form today.

Cacao farmers now prefer hybrid trees that yield poorer chocolate but are more resistant to disease.

Currently, production of fine cocoa - the raw ingredient of chocolate made from cacao beans - makes up less than 5% of the world total.

But the new genome, or genetic code blueprint, could see a return to the supreme quality chocolate enjoyed by the Maya.

The scientists assembled 84% of the cacao genome and identified 28,798 genes that code for proteins.

They also found that microRNAs - short strands of genetic material that help regulate genes - had a major influence on Criollo gene activity.

It is hoped the information will be used to develop high quality, disease-resistant strains.

Dr Siela Maximova, a member of the team from Pennsylvania State University, said: "Our analysis of the Criollo genome has uncovered the genetic basis of pathways leading to the most important quality traits of chocolate - oil, flavonoid and terpene biosynthesis.

"It has also led to the discovery of hundreds of genes potentially involved in pathogen resistance, all of which can be used to accelerate the development of elite varieties of cacao in the future."

The research is published in the journal Nature Genetics.

