genotype of each of the offspring resulting from the breeding was tallied for the 1^{st} generation, 5^{th} generation and 10^{th} generation.

	$^{4}F_{i}$	F5	F10
Individuals with AA genotype	8	11	11
Frequency of genotype AA, f(AA)	0.24	0.33	0.33
Individuals with Aa genotype	17	13	15
Frequency of genotype Aa, f(Aa)	0.52	0.39	0.45
Individuals with aa genotype	8	9	7
Frequency of genotype aa, f(aa)	0.24	0.27	0.21
Frequency of the dominant allele A $f(A) = f(AA) + \frac{1}{2} f(Aa)$	0.5	0.53	0.56
Frequency of the recessive allele a $f(a) = f(aa) + \frac{1}{2}f(Aa)$	0.5	0.47	0.44

B. Chi-square test

Activity 2 – Chi-square analysis to verify if there is a statistically significance difference in the genotypic frequencies AA, Aa and aa between the 10^{th} generation (F₁₀) and the initial generation (F_i).

generation (F_i). **Table 2.B:** Chi-square analysis to assess whether conot the genotype frequencies (f(AA), f(Aa) and f(aa)) in the F₁₀ population (10) generation) was statistically different to the genotype frequencies from the Fi kupulation (initial population). The null hypothesis, Ho⁵, stated that there was not any ratio in the same genotype frequency (f(AA), f(Aa) and f(ar)) in the F₁₀ population and the same genotype frequency (f(AA), f(Aa) and f(aa)) in the Fi population. With a chi-square (χ^2) value of 1.485 and a degree of freedom (d.f) of 2, a p-value of 0.2<p<0.5 the null hypothesis was accepted at a 5% significance level.

Phenotype	1.485	1.485	1.485	1.485
F ₁₀ generation (Observed)	11	15	7	33
Initial population (Expected)	(0.25x33) = 8	(0.5x33) = 17	(0.25x33) = 8	33
Observed - expected	3	2	1	-
(Observed-Expected) ²	9	4	1	-
(Observed-Expected) ² /Expected	1.125	0.2353	0.125	$\chi^2 = 1.485$

⁴ Fi: initial generation. F_5 , on the other hand, is the 5th generation, referring to 5 generations after the initial generation. Likewise, F_{10} is the 10th generation which refers to 10 generations after the initial generation, or 5 generations after the 5th generation.

⁵ Ho, the hypothesis stated that there was no significant difference between the genotypic frequencies (f(AA), f(Aa), and f(aa)) difference between the F_{10} and F_i generation was accepted. The reason being that, for a degree of freedom of 2, a chi-square value (χ^2) of 1.485, the p-value was confined between 0.2 and 0.5 (0.2<p<0.5), since the p-value was higher than 5% level of significant, the null hypothesis claiming that there was no genotype difference between the initial and F_{10} generation was accepted. The chi-square value also was less than the critical chi-square value at p=0.05, which was 5.991 (d.f = 2). The degree of freedom (d.f) was calculated as follow: (number of categories – 1). There was 3 genotypic categories possible (AA, Aa, aa), 3-1 = 2 degree of freedom.