

## Supplemental Information S1:

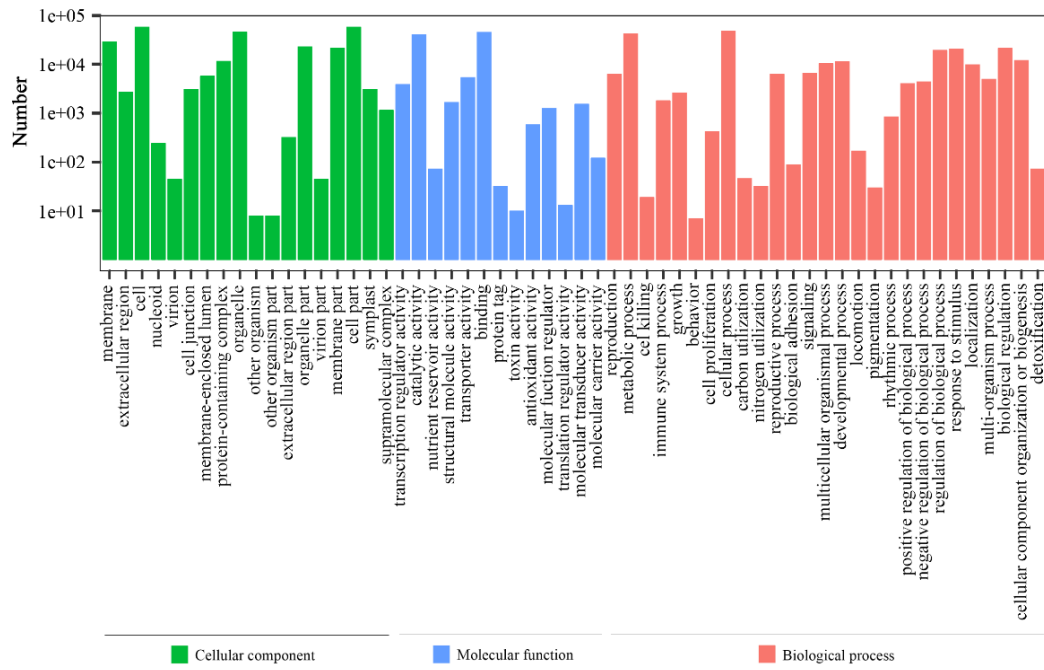
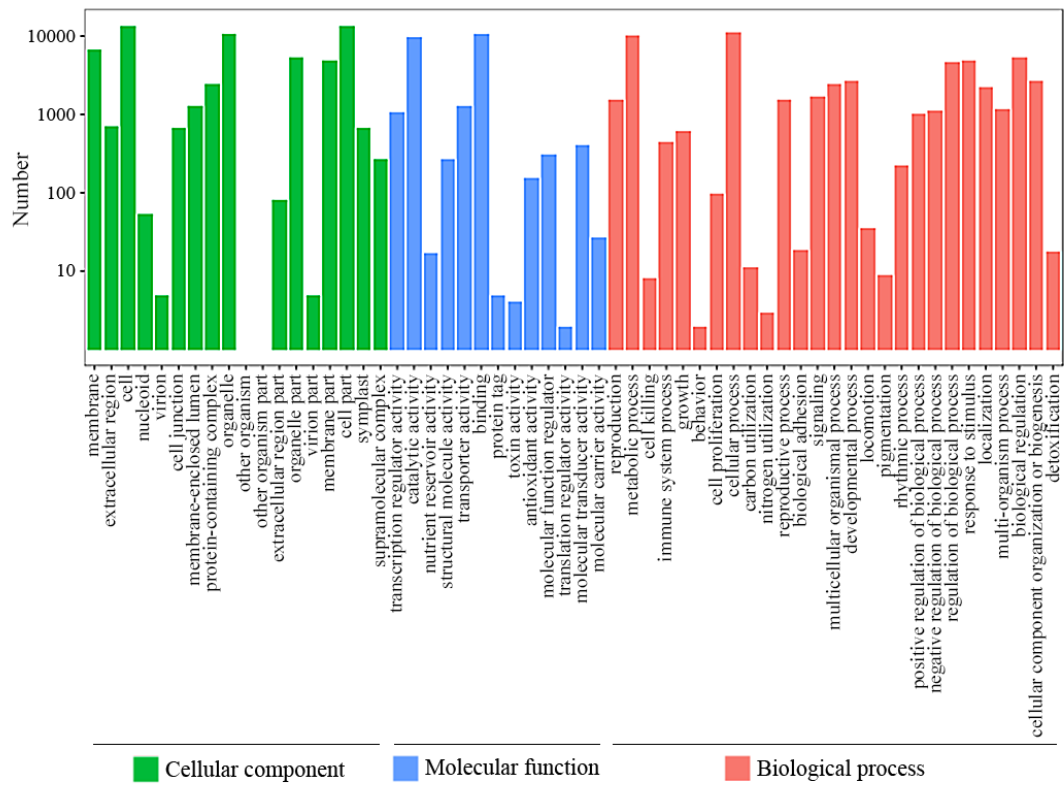


Figure S1 GO classification of the *Luffa* unigene library



**FigureS2** GO classification of the DEGs identified in the unigene libraries between two

*Luffa* cultivars.

KEGG Classification

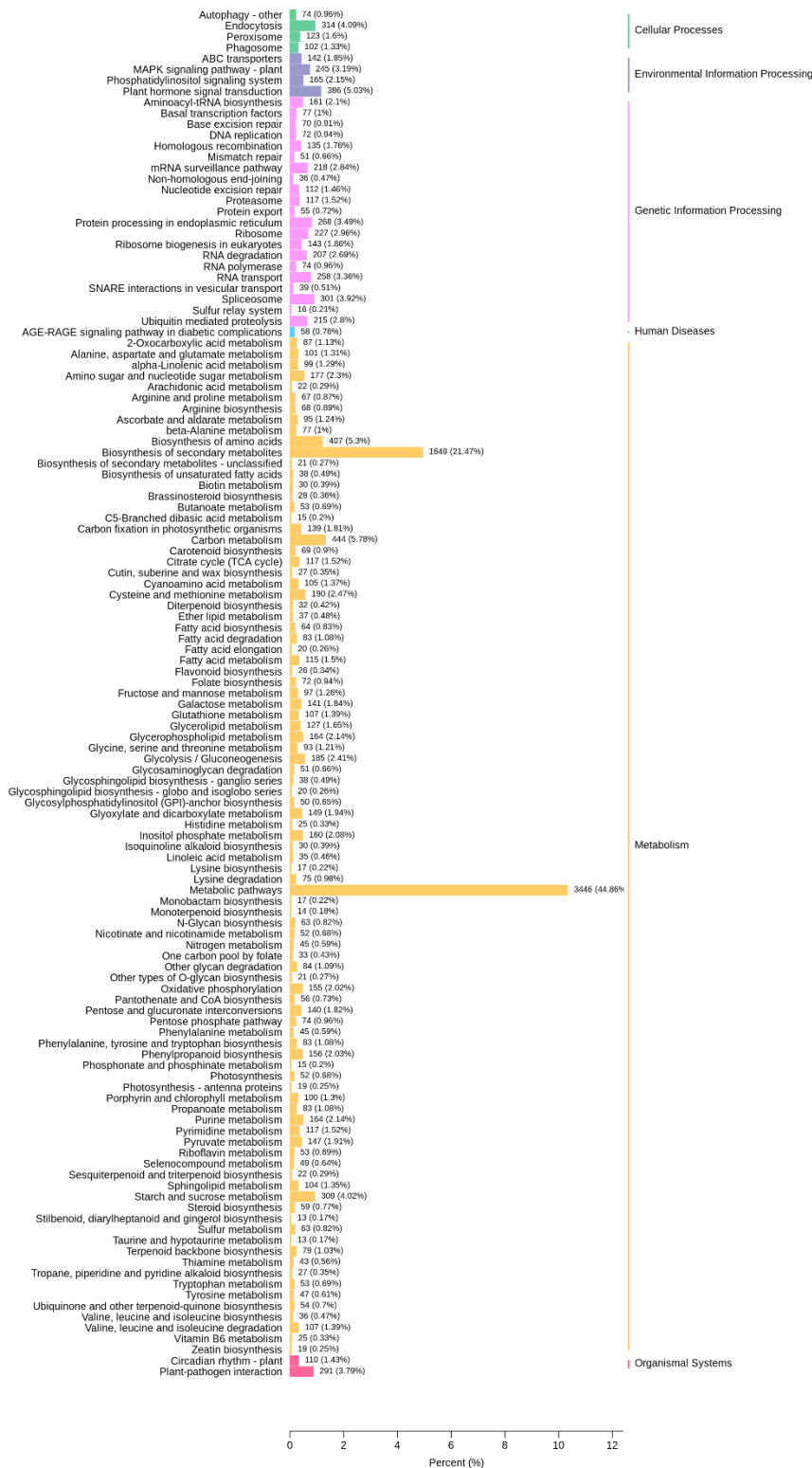


Figure S3 KEGG classification of the DEGs identified in the unigene libraries between two *Luffa* cultivars.

**Table S3** Comparison of unigenes identified in transcriptome during browning of ‘Fusi-3’ fruits and transcriptome of two *Luffa* cultivars ‘2D-2’ and ‘35D-7’.

‘Fusi-3’		‘2D-2’ and ‘35D-3’			Annotation
Unigene ID	Expression trend	Unigene ID	Expression trend	Log2fold change	
Unigene 0043875	up	Cluster-21832.13892	up	7.15	polyphenol oxidase
Unigene0050171	up	none	none	none	polyphenol oxidase
Unigene0015096	down	Cluster-21832.13892	up	7.15	polyphenol oxidase
Unigene0044748	up	Cluster-21832.39888	-	-	phenylalanine ammonia-lyase
Unigene0024978	up	Cluster-47379.0	up	2.16	phenylalanine ammonia-lyase
Unigene0011770	up	Cluster-21832.19847	up	2.27	peroxidase
Unigene 0036262	up	Cluster-21832.36955	up	2.72	catalase
Unigene0033876	down	Cluster-21832.30636	up	2.21	catalase
Unigene 0021782	up	Cluster-21832.29146	-	-	superoxide
Unigene0008835	down	Cluster-45332.0	-	-	superoxide
Unigene0015506	down	Cluster-21832.7745	up	9.46	superoxide

‘Fusi-3’ represents the transcript analysis during the browning of ‘Fusi-3’ fruits. ‘2D-2’ and ‘35D-7’ represents the transcript analysis of browning-resistant *Luffa* cultivar ‘2D-2’ and browning-prone *Luffa* cultivar ‘35D-7’. ‘None’ indicates no matching to the sequence. ‘-’ indicates that no significant difference was found in gene expression. Green and red color represents the same and opposite expression trend, respectively.

**Table S4** Information of WRKY transcription factors identified in the transcriptomes of *Luffa* '2D-2' and '35D-7'.

Unigene No.	Expression		Domain		Accession No.
	log2FoldChange	Regulated	Number	Description	
Cluster-18244.0	12.4292	up	2		pfam03106
Cluster-10926.1	10.0614	up	2		pfam03106
Cluster-21832.2248	3.58428	up	1		smart00774
Cluster-21832.38074	2.78687	up	1		smart00774
Cluster-21832.39105	2.34574	up	2		pfam03106
Cluster-21832.6008	2.27242	up	2		pfam03106, smart00774
Cluster-21832.26783	2.06106	up	1		smart 00774
Cluster-18244.1	1.99927	up	1	WRKY DNA-binding domain	pfam03106
Cluster-10926.2	1.79678	up	2		pfam03106
Cluster-21832.19413	-1.7055	down	2		pfam03106
Cluster-21832.40922	-2.4811	down	2		pfam03106
Cluster-21832.22382	-2.7626	down	2		pfam03106
Cluster-21832.19423	-9.7218	down	2		pfam03106
Cluster-21832.14119	-9.8482	down	2		pfam03106
Cluster-21832.18531	-9.8809	down	2		pfam03106
Cluster-21832.40775	-9.9233	down	2		pfam03106
Cluster-18244.4	-12.376	down	2		pfam03106