

Supplementary Information

Table S1: The list of compounds identified from the root and fruit of *P. longum*

Table S2: The DC, BC and CC values of the top 20 genes with high node degrees

Table S3: The DC, BC and CC values of the top 10 compounds with high node degrees

Supplementary Information

Table S1: The list of compounds identified from the root and fruit of *P. longum*

Compounds in fruit	Compounds in root
Hexadecane	2-Tridecanone
Piperundecalidine	1-Pentadecene
2-Tridecanone	Cepharadione B
Octadecane	Norcepharadione B
1-Pentadecene	Myrcene
Norcepharadione B	Piperine
Myrcene	Piperlonguminine
Piperine	Aristolodione
Aristolodione	Aristolactam BII
Aristolactam BII	Piperlongumine
p-Cymene	Decanal
4'-Methoxyacetophenone	1-Methylhexyl acetate
Dehydropiperonaline	Methyl 3,4,5-trimethoxycinnamate
Guineensine	Dodecanal

2-Phenylethanol	Cepharadione A
Piperlongumine	beta-Cubebene
Pluviatilol	Cadinane
Eicosane	Heptadecane
Decanal	Pentadecane
1-Methylhexyl acetate	Triacontane
Dodecanal	Tridecane
beta-Cubebene	2-Nonanone
Cadinane	Eucalyptol
Pipernonaline	beta-Elemene
Aristololactam	alpha-Terpinyl acetate
Heptadecane	2-Undecanone
Nonadecane	beta-Eudesmol
Heneicosane	Terpinolene
Pentadecane	(+)-alpha-Gurjunene
Tridecane	alpha-Muurolene
2-Nonanone	alpha-Eudesmol
Eucalyptol	Humulene
beta-Elemene	gamma-Muurolene
Isobutyramide	(Z)-gamma-bisabolene
alpha-Terpinyl acetate	Elemol
2-Undecanone	(+)-beta-Phellandrene
beta-Eudesmol	Linalool
(1R)-2-methyl-5-propan-2-ylbicyclo[3.1.0]hex-2-ene	alpha-Pinene
Fargesin	beta-Pinene

Pellitorine	alpha-Terpineol
Terpinolene	beta-Patchoulene
(+)-alpha-Gurjunene	delta-Cadinol
alpha-Muurolene	(-)-alpha-Cadinol
alpha-Eudesmol	9-Eicosyne
Zingiberene	Caryophyllene oxide
Humulene	Piperolactam A
gamma-Muurolene	(Z)-beta-Ocimene
(Z)-gamma-bisabolene	gamma-Elemene
Elemol	delta-Elemene
(+)-beta-Phellandrene	alpha-Phellandrene
Linalool	beta-Caryophyllene
alpha-Pinene	(E)-beta-ocimene
Dihydrocarveol	Bornyl acetate
beta-Pinene	Camphene
alpha-Terpineol	Copaene
beta-Patchoulene	5-[3-(1,3-Benzodioxol-5-yl)-1,3,3a,4,6,6a-hexahydrofuro[3,4-c]furan-6-yl]-1,3-benzodioxole
Aristolactam AII	Limonene
delta-Cadinol	Nerolidol
(-)-alpha-Cadinol	Tetrahydropiperlongumine
9-Eicosyne	Trimethoxy cinnamoyl-piperidine
Caryophyllene oxide	6-alpha-diol
(Z)-beta-Ocimene	2E,4E-dienamide
gamma-Elemene	7-epi-eudesm-4(15)-ene-1beta

delta-Elemene	
alpha-Phellandrene	
beta-Caryophyllene	
(E)-beta-ocimene	
Bornyl acetate	
Camphene	
Copaene	
5-[3-(1,3-Benzodioxol-5-yl)-1,3,3a,4,6,6a-hexahydrofuro[3,4-c]furan-6-yl]-1,3-benzodioxole	
Limonene	
Nerolidol	
longamide	
tetrahydropiperic acid	
piperettine	
asarinine	
piperlonguminine	
demethoxyplartine	
N-isobutyl decadienamide	
tetrahydro piperine	
sesamin	

Table S2: The DC, BC and CC values of the top 20 genes with high node degrees

S.NO	GENE	DEGREE	BETWEENNESS	CLOSENESS
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1	CTNNB1	Degree: 42.0	Betweenness: 536.3216	Closeness: 0.70408165
2	STAT3	Degree: 39.0	Betweenness: 415.04984	Closeness: 0.6831683
3	HIF1A	Degree: 37.0	Betweenness: 601.5508	Closeness: 0.6699029
4	HSP90AA1	Degree: 35.0	Betweenness: 279.21713	Closeness: 0.6448598
5	ERBB2	Degree: 34.0	Betweenness: 310.8129	Closeness: 0.6448598
6	PTGS2	Degree: 33.0	Betweenness: 225.435	Closeness: 0.6330275
7	MDM2	Degree: 27.0	Betweenness: 92.45294	Closeness:0.58474576
8	CDK4	Degree: 26.0	Betweenness: 109.61591	Closeness: 0.57983196
9	CASP8	Degree: 22.0	Betweenness: 37.619987	Closeness:0.57024795
10	MAPK1	Degree: 23.0	Betweenness: 101.96046	Closeness: 0.575
11	CDK2	Degree: 23.0	Betweenness: 80.629715	Closeness: 0.56557375
12	MAPK8	Degree: 23.0	Betweenness: 55.634125	Closeness: 0.5609756
13	AR	Degree: 23.0	Betweenness: 309.2111	Closeness: 0.57024795

14	PGR	Degree: 21.0	Betweenness: 55.176437	Closeness: 0.56557375
15	MMP2	Degree: 21.0	Betweenness: 48.341125	Closeness: 0.5564516
16	STAT1	Degree: 22.0	Betweenness: 118.963036	Closeness: 0.54761904
17	MCL1	Degree: 18.0	Betweenness: 16.44801	Closeness: 0.53488374
18	CDK1	Degree: 22.0	Betweenness: 137.07443	Closeness: 0.5564516
19	CHEK1	Degree: 23.0	Betweenness: 161.48833	Closeness: 0.54330707
20	DNMT1	Degree: 16.0	Betweenness: 13.377821	Closeness: 0.5307692

Table S3: The DC, BC and CC values of the top 10 compounds with high node degrees

S.NO	Compound Name	Degree	Betweenness	Closeness
1	7-epi-eudesm-4(15)-ene- 1beta	Degree: 33.0	Betweenness: 820.94586	Closeness: 0.48356807
2	demethoxyplartine	Degree: 20.0	Betweenness: 242.6487	Closeness: 0.43096235

3	Methyl 3,4,5-trimethoxycinnamate	Degree: 19.0	Betweenness: 244.99773	Closeness: 0.4273859
4	6-alpha-diol	Degree: 31.0	Betweenness: 720.89215	Closeness: 0.47465438
5	Aristolodione	Degree: 17.0	Betweenness: 164.20059	Closeness: 0.42040816
6	Aristolactam	Degree: 16.0	Betweenness: 208.32811	Closeness: 0.41700405
7	Norcepharadione B	Degree: 15.0	Betweenness: 125.49597	Closeness: 0.41365463
8	Piperlongumine	Degree: 13.0	Betweenness: 69.643684	Closeness: 0.40711462
9	Cepharadione B	Degree: 13.0	Betweenness: 87.37466	Closeness: 0.40711462
10	Fargesin	Degree: 11.0	Betweenness: 55.324604	Closeness: 0.4007782