

Supplementary Data

Data S1

Major pea proteins are divided in 4 categories: legumin, vicilin, albumin and convicilin [1–3]. These proteins names were entered in UniProtKB, 36 protein sequences were obtained for *Pisum Sativum* pea specie, among which, the repeated ones and sequences within the same category with more than 90% of similarities in the AA composition were removed. A final list of 10 main protein sequences were selected from which peptides sequences were obtained using theoretical hydrolysis. 10 proteins selected and their sequences are listed below:

1. Legumin A, 59 kDa with 517 amino acids

MAKLLALSLSFCLLLGGCFALREQPQQNECQLERLDALEPDNRIESEGGLIETWNPNNKQFRCAGVALSR
ATLQRNALRRPYYSNAPQEIFIQQGNGYFGMVFPGPCPETFEEPQESEQGEGRRYRDRHQKVNRFREGDII
AVPTGIVFWMYNDQDTPVIAVSLTDIRSSNNQLDQMPPRRFYLAGNHEQEFLQYQHQQGGKQEQENEG
NNIFSGFKRDYLEDAFNVNHRHIVDRLQGRNEDEEKGAIVKVKGGLSIISPPEKQARHQGRSRQEEDEDEEK
QPRHQGRSRQEEEEDEERQPRHQRRRGEEEEEDKKERGGSQKGKSRQQGDNGLEETVCTAKLRLNIG
PSSSPDIYNPEAGRIKTVTSLDLPVLRWLKLSAEHGSLHKNA MFVPHYNLNANSIIYALKGRARLQVVNCN
GNTVFDGELEAGRALTVPQNYAVAAKSLSDRFSYVAFKTNDRAGIARLAGTSSVINNLPLDVVAATFNLQ
RNEARQLKSNNPFKFLVPARESEN RASA

2. Legumin J, 57 kDa with 503 amino acids

MSKPFLSLLSLSLLLFASACLATSSEFDRLNQCQLDSINALEPDHRVESEAGLTETWNPNHPELKCAGVSLIR
RTIDPNGLHLPSFSPSPQLIFIIQGKGVGLSFPGPCPETYEEPRSSQSRQESRQQQGD SHQKVRFRFRKGDIIA
IPSGIPYWTYNHGDEPLVAISLLDTSNIANQLDSTPRVFYLGGNPETEFPETQEEQQGRHRQKHSYPVGRR
SGHHQQEEEEEEQNEGNSVLSGFSSEFLAQTFNTEEDTAKRLRSPRDERSQIVRVEGGLRIIKPKGKEEEEK
EQSHSHSHREEEEEEEEEEDEEEKQRSEERKNGLEETICSAKIRENIADAARADLYNPRAGRISTANSLTLP

VLRYLRLSAEYVRLYRNGIYAPHWNINANSLLYVIRGEGRVIRIVNCQGNTVFDNKVRKGQLVVVPQNFVV
AEQAGEEEGLEYYVFKTNDRAAVSHVQQVFRATPSEVLANAFGLRQRQVTELKLSGNGRPLVHPRSQSQ
SH

3. Legumin L1 β chain, 8 kDa with 70 amino acids

FLEETVCTLKLHEDLAGSSQADVFNPRAGRITSVNSLTLPVLKLLHLSAQWVKLYKNGIFMPHWNLNANS

4. Legumin L1 α chain, 7 kDa with 58 amino acids

RQLPRQPSELYECQLDTIHAREPDNRYDSEAGFTETWDXTXPDLCAGVSVLKLITNP

5. Legumin minor small, 65 kDa with 566 amino acids

MARHFLSSFSLCFLFFTACLAHHSSEDRFNQCQLDTINALEPDHRVESEAGLTETWNPNHPELKCAGVSL
IRRTIDPNGLHLPSYSPSPQLIFIIQGKGVGLAVPGCPETYEPRSQSRRQQQQRDSHQKIRRFSGDVI
PPGIPYWTYNHGHEPLVAITLLDTSNTLNQLDSTPRVFYLGGNPEIEFPETQQKQHEPRQQRYSLVGRR
GGQQQEEEEEEQNEGNSVLSGFNVEFLAHS LNTKEDTAKRLRSPQDERGQIVKVEDGLH IISPELQEEEEQ
SHSQRKEEEEEEEQEQRHRK HSKKEDEDEDEEEEEEREQRHRK HSEKEEDEDDEPRSYETRRKWKKHTAEK
ERESHGQGEEEEEELEKEEEEEEGIQRQHSKGRKNGLEETICSAKIRENIARPSRGDLYNSGAGRISTVNSLT
PILRNLRLSAEYVLLYRNGIYAPHWNINANSLLYVIRGEGRVIRIVNSEGNKVFDKVSGLQVLVVVPQNFVV
AQQAGNEEGFEYVFKTNDRAAVSHVNQVFRATPGEVLANAFGLRHSQVAQIKSNGNRGPLVQPQSQ

6. Vicilin, 52 kDa with 459 amino acids

MAATTMKASFLLMLMGISFLASVCVSSRDPQNPFIKSNKFQTLFENENGHIRLLQKFDQRSKIFENLQ
NYRLLEYKSKPHTIFLPQHTDADYILVVLGKAILTVLKPDDRNSFNLERGDTIKLPAGTIAYLVNRDDNEEL
RVLDLAIPVNRPGQLQSFLSGNQNNQNYLSGFSKNILEASFNTDYEEIEKVLEEHEKETQHRRSLKDKRQ
QSQEENVIVKLSRGQIEELSKNAKSTSKKSVSSESEPFNLSRGPIYSNEFGKFEITPEKNPQLQDLDFVNS
VEIKEGSLLLPHYNSRAIVIVTVNEGKGDFELVGQRNENQQEQRKEDDEEEEQGEEIINKVQVQNYKAKLSS

GDV FVIPAGHPVAVKASSNLDLLGFGINAENNQRNFLAGDEDNVISQIQRPVKELAFPGSAQEVDRILEN
KQKSHFADAQPQQRERGSRETRDRLSSV

7. Vicilin 14 kDa with 124 amino acids

DRRQELSNENVLVKVSRRLQLEELSKNAKSSRRSVSSESGPFNLRSDDPLYSNNSGKFFELTPEKNQQLQD
LDFVNSVDLKEGSLLLPNYNSRALLVVLVNEGKGFELVGQRNENQGKEN

8. Convicilin CVCA, 67 kDa with 571 amino acids

MATTVKSRFPLLLFLGIIFLASVCVTYANYDEGSETRVPGQRERGRQEGEKEEKRHGEWRPSYEKEEHEEE
KQKYRYQREKKEQKEVQPGRERWEREEDEEQVEEWRGSRREDPEERARLRHREERTKRDRRHQREG
EEEERSSESQEHRNPFLFKSNKFLTLFENENGHIRRLQRFDKRSDFENLQNYRLVEYRAKPHTIFLPQHIDA
DLILVVLNGKAILTVLSPNDRNSYNLERGDTIKIPAGTTSYLVNQDDEEDLRVVDFVIPVNRPGKFEAFGLSE
NKNQYLRGFSKNILEASLNTKYETIEKVLEEQEKPPQQLRDRKRTQQGEERDAIIKVSREQIEELRKLAKSS
SKKSLPSEFEPFNLRSKPEYSNKFGLFEITPEKKYPQLQDLILVSCVEINKGALMLPHYNSRAIVVLLVNE
GKGNLELLGLKNEQQEREDRKERNNEVQRYEARLSPGDVVIIPAGHPVAISASSNLNLLGFGINAKNNQR
NFLSGSDDNVISQIENPVKELTFPGSSQEVNRLIKNQKQSHFASAEPEQKEEESQRKRSPLSSVLDSFY

9. Albumin-2, 26 kDa with 231 amino acids

MTKTGYINAAFRSSQNNEAYLFINDKYVLLDYAPGTSNDKVLYGPTPVRDGFKSLNQTVFGSYGVDCSFD
TDNDEAFIFYEKFCALIDYAPHSNKDKIILGPKKIADMFPFFEGTVFENGIDAAYRSTRGKEVYLFKGDQYAR
IDYETNSMVNKEIKSIRNGFPCFRNTIFESGTDAAFASHKTNEVYFFKGDYYARVTVTPGATDDQIMDGVR
KTLDYWPSLRGIIPLEN

10. Albumin-1, 14 kDa with 130 amino acids

MASVKLASLIVLFATLGMFLTKNVGAASCNGVCSPFEMPPCGTSACRCIPVGLVVGYCRNPSGVFLRTND
EHPNLCESDADCRKKGSGNFCGHYPNPDIYGWCFASKSEAEDFFSKITPKDLLKSVSTA

Data S2

Columns specifications

Column	HiFloQ1-NiNTA	HisTrap™FF crude
Diameter	0.7 cm	0.7 cm
Height	2.5 cm	2.5 cm
Bed volume	1 mL	1 mL
Total porosity	0.48	n.d
Metal ions	Ni ²⁺	15 µmol Ni ²⁺ /ml medium
Complex agent	Nitrilotriacetic Acid (NTA)	n.d
Matrix	Super Ni-NTA Agarose	Highly cross-linked spherical Agarose 6%
Base matrix	7.5% cross-linked Agarose	-
Binding capacity	50-75 mg	40 mg of 6His tagged protein
Material	Polypropylene	Polypropylene
Storage	20% ethanol , 4°C	20% ethanol , 4°C

Reference

- [1] Boye, J., Zare, F., Pletch, A., Pulse proteins: Processing, characterization, functional properties and applications in food and feed. *Food Research International* 2010, 18.
- [2] Tamm, F., Herbst, S., Brodkorb, A., Drusch, S., Functional properties of pea protein hydrolysates in emulsions and spray-dried microcapsules. *Food Hydrocolloids* 2016, 58, 204–214.
- [3] Lam, A. C. Y., Can Karaca, A., Tyler, R. T., Nickerson, M. T., Pea protein isolates: Structure, extraction, and functionality. *Food Reviews International* 2018, 34, 126–147.