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A Comparative Study of the Proteins of Citrus Seeds.

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The seeds of citrus plants are particularly adapted to comparative studies of the proteins of different plant species. They can be obtained relatively easily and yield a crystalline globulin which has been given the name "pomelin". To isolate the protein the seeds are ground to a fine meal and the oil, which constitutes about 35% of the total weight, is removed with benzene. The defatted meal is covered with 10 times its weight of a salt solution which has been heated to 55°. (The concentration of the salt solution may vary from normal to saturation.) The salt solution is recovered by filtration or centrifuging and saturated with ammonium sulfate. The precipitated protein is collected by filtration and redissolved in a minimum of water. If the solution is not clear any sediment is removed in the centrifuge. The solution is dialyzed in viscose bags for 48 hours against cold (6-10°) running distilled water which causes the globulin to separate in a crystalline form. No preservative is used. The protein is collected and washed with several changes of alcohol starting with 30% and running up to absolute. After a final washing with absolute ether and air-drying, the protein is ready for analysis.

TABLE I.

Nitrogen Distribution of Protein (Pomelin) from Various Citrus Seeds.

	Orange	Lemon	Grapefruit
Total N	16.29	16.44	16.21
Amino N	72.59	77.08	78.71
Amide N + Humin N	14.95	15.58	15.76
Di-amino N	12.14	12.48	13.20
Mono-amino N	52.28	52.31	51.84
Non-amino N	——	6.04	5.54
Total S—	0.40	0.62	0.50

The results of the analysis for various nitrogen fractions are shown in Table I. The analytical figures show that the pomelin from grapefruit, lemon and orange is the same in each case. The analysis of pomelin from tangerine seeds also agrees with these figures although there was not enough material available for complete analysis. The crystal form as far as can be seen under the microscope is the same in each case. The authors conclude that the seeds from the citrus plants: grapefruit, lemon, and orange, and probably tangerine, all yield the same crystalline globulin, pomelin.