Isolation and characterization of a seed lectin from elderberry (Sambucus nigra L.) and its relationship to the bark lectins.

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A third elderberry (Sambucus nigra L.) lectin (SNA-III) has been isolated from dry seeds by affinity chromatography on immobilized 2-acetamido-2-deoxy-D-galactose. This lectin is a blood-group, nonspecific glycoprotein containing 21% of carbohydrate, and is rich in asparagine (or aspartic acid), serine, glutamine (or glutamic acid), and glycine. Gel filtration on Superose 12 yielded a single symmetrical peak corresponding to mol. wt. 50,000, SDS-poly(acrylamide) gel (SDS-PAGE) electrophoresis showed a single polypeptide band of 33 kDa, indicating that the native protein is a dimer of identical subunits. Hapten-inhibition assays of the agglutination of red blood cells showed that 2-acetamido-2-deoxy-D-galactose is the best inhibitor, being twice as potent as D-galactose, melibiose, and 2-amino-2-deoxy-D-galactose. A comparison of SNA-III to the previously described elderberry-bark lectins, SNA-I and SNA-II, indicated that the seed lectin is well distinct from them.