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Anticomplementary and Hypoglycemic Activity of Okra and Hibiscus Mucilages*

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The present paper describes the anticomplementary activity and hypoglycemic activity of the six mucilages obtained from *Abelmoschus esculentus* (i.e. *Hibiscus esculentus* L.; okra), *Hibiscus moscheutos* and *Hibiscus syriacus*. Okra-mucilages F and R were isolated from the immature fruit and the root of *Abelmoschus esculentus*, respectively. Hibiscus-mucilages Mo and ML were isolated from the root and the leaf of *Hibiscus moscheutos*, and Hibiscus-mucilages SL and SF from the leaf and the flower bud of *Hibiscus syriacus*, respectively.

Hibiscus-mucilages ML and SF showed remarkable anticomplementary activities. Okra-mucilage R and Hibiscus-mucilage SL also had potent activities, which were almost at the same level as that of the positive control, AR-arabinogalactan from the root of *Angelica acutiloba*. The remarkable activities of these mucilages may result from the highly branched structure. The activities of Okra-mucilage F and Hibiscus-mucilage Mo were lower than those of the former four mucilages.

Most of Okra-mucilages F and R and of Hibiscus-mucilages Mo, ML, SL and SF exhibited significant hypoglycemic activity, though the effect of Hibiscus-mucilage ML was dose dependent. These mucilages which showed extensive hypoglycemic activity have a backbone chain consisting of almost only the repeating unit L-rhamno-D-galacturonan. Okra-mucilage R especially showed a remarkable activity. It possesses the trisaccharide repeating unit, $(1 \rightarrow 4)\text{-}[\beta\text{-D-Glc}pA\text{-}(1 \rightarrow 3)]\text{-}\alpha\text{-D-GalpA}\text{-}(1 \rightarrow 2)\text{-}\alpha\text{-L-Rhap}$, as the main part of the backbone. In addition, it has side chains composed mainly of $\beta\text{-1,4-linked D-galactopyranose}$ residues, and $\alpha\text{-1,2-linked L-rhamnopyranosyl}$ residues in part of the backbone. The D-glucuronic acid side-chain groups at O-3 of the D-galacturonic acid residues in the backbone are not essential for the hypoglycemic effect, as Okra-mucilage F showed a significantly activity.

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