

flavones appear identical to those produced in silk of the Fv/Fv genotype. These observations are based on R_f values obtained by paper chromatography in two solvent systems (BAW & 15% HOAc). Consequently, the block to flavone synthesis in the fv/fv genotype appears confined to the silks.

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1. A preliminary attempt to group Latin American races of maize.

Using a set of 30 characters including geographic characters as well as a set of ear, kernel, and cob characteristics known to be relatively slightly altered by environmental effects (see Goodman and Paterniani, 1969), principal components analysis and cluster analysis were employed to group 230 races of maize from Mexico, Venezuela, Colombia, Peru, Ecuador, Bolivia, Chile, Argentina, Uruguay, Paraguay, Brazil, the Guianas, and Cuba. The data were taken from the series of Races of Maize booklets describing these races, from Paterniani (1967), from the Ph.D. thesis of R. M. Bird (University of California, 1970), and from Goodman (1967, 1968, and unpublished). Distances between all possible pairs of races were calculated using the first 10 standardized principal components (those with eigenvalues of approximately one or greater). Unweighted cluster analysis (Sokal and Sneath, 1963) was then applied to those distances.

Thirty-six groups of races were obtained. (The following abbreviations are used: A = Argentina, Bo = Bolivia, Br = Brazil, Ch = Chile, Co = Colombia, Cu = Cuba, E = Ecuador, G = the Guianas, M = Mexico, Pg = Paraguay, Pu = Peru, U = Uruguay, and V = Venezuela). Brackets and parentheses indicate subgroupings. Races are listed within groups and subgroups in order of increasing average distance from those which precede them. Subgroups are also listed in order of increasing average distance.

Certain races described by Brieger et al. (1958) from eastern South America are assigned somewhat arbitrarily to a specific country or countries despite the fact that they are, in fact, found in other regions also. In cases where such races occur in Bolivia, they also occur in Brazil, Paraguay, or Argentina, and in all cases they have been designated here as belonging to one of the latter to avoid confusion with the races described in the Bolivian race bulletin.

The grouping presented is regarded as strictly tentative. If either the set of races or the set of characters analyzed were to be changed, a somewhat different grouping would be expected. However, a preliminary grouping such as this can be used for several purposes. It is planned to select a representative subset of races in order to further evaluate the characters already studied, as well as some additional characters considered to be potentially important. These include some internal characters of the cob which promise to be especially useful in studying archaeological maize remains.

Finally it is planned to use F_2 variability as a genetic check on the phenotypic similarities used in constructing these groupings. Such studies should be especially interesting in cases such as Oloton vs. Amagaceno and Pardo vs. the Harinoso de Ocho - Tabloncillo group, which suggest close relationships between South American and Mexican races. Similarly such studies should also be quite useful in cases of doubtful groupings such as Mishca with Rabo de Zoro and Maranon.

1. (Chapalote - M, Nal Tel - M, Reventador - M), (Yellow Pop - Cu, Arrocillo Amarillo - M)
2. Araucano - Ch
3. Chalqueno - M, Conico Norteno - M, Conico - M, Pepitilla - M, Palomero Toluqueno - M
4. (Tepecintle - M, Zapalote Grande - M, Tehua - M), (Zapalote Chico - M, Bolita - M)
5. (Tuxpeno - M, Vandeno - M, Celaya - M), (Jala - M, Comiteco - M)
6. (Harinoso de Ocho - M, Tabloncillo - M, Tabloncillo Perla - M, Pardo - Pu), (Harinoso de Ocho Occidentales - M, Olotillo - M)
7. Capia Amarillo - A, Capiro Grande - Ch, Choclero - Ch

8. (Dente Rio Grandense Rugoso - Br, Dente Rio Grandense Liso - Br, Dente Paulista - Br, Semi-Dentado Rio Grandense - Br), (Cravo Paulista - Br, Cravo Rio Grandense - Br)
9. Lenha - Br, Moroti Guapi - Pg
10. Confite Puneno - Bo, Patillo - Bo
11. Rabo de Zorro - Pu, Maranon - Pu, Mishca - E
12. (Cabuya - Co, Huandango - E), (Rienda - Pu, Tusilla - E, Canilla - Cu, Pira Naranja - Co, Chimlos - Pu)
13. [(Cateto Sulino - A and U, Cateto Sulino Precoce - A, Cristalino - Ch), (Cateto Sulino Grosso - U, Cateto Sulino Escuro - U), Dentado Comercial - Ch], {[(Cateto Assis Brasil - Br, Camelia - Ch), (Canario de Ocho - U and A, Cateto Grande - Br), (Cateto - Br, Cateto - Bo)], [(Yungueno - Bo, Patillo Grande - Bo, Chutucuno Grande - Ch)]}, Cristalino Norteno - Ch
14. (Uchuquilla - Pu, Uchuquilla - Bo, Kcello - Bo, Karapampa - Bo), (Amarillo de Ocho - A, Capia Amarillo de Ocho - A), (Ninuelo - Bo, Chake Sara - Bo, Perola - Bo)
15. [(Cateto Nortista - G, Cateto Nortista Precoce - G), (Tuson - V, Cubano Dentado - Bo, Puya Grande - Co)], [(Costeno - V, Costeno - Co), (Arizona - Pu, Gallina - E), Cuba Yellow Flint - V, (Yucatan - Co, Sabanero - V, Comun - Co)], [(Comun - V, Puya Grande - V, Puya - Co, Chuncho - Pu), (Canilla - V, Chandelle - V), Puya - V], (Argentino - Cu, Perla - Pu, Criollo - Cu, Tuson - Cu)
16. [(Amagaceno - Co, Oloton - M), (Montana - Co, Uchima - E), Andaqui - Co, (Sabanero - Co, Morocho - Pu), Sabanero - E], [Patillo - E, Kcello - E, Clavito - E, (Huevito - V, Pollo, V)]
17. [(Coruca - Pu, Cuzco - Bo, Cuzco - Pu), (Huancavilicano - Pu, Cuzco Cristalino Amarillo - Pu, Cuzco-Huilcaparu - Bo), Cuzco Gigante - Pu, (Cuzco - E, Sabanero - Pu)], [Conico Dentado - E, Huachano - Pu], (Arequipeno - Pu, Chancayano - Pu)]
18. [(Marron - A, Culli - A, Checchi - Bo), (Harinoso Tarapaqueno - Ch, Achilli - A), Capiro Negro - Ch, (Huilcaparu - Bo, Piscacorunto - Pu), Aysuma - Bo], {[(Kulli - Bo, Altiplano - Bo), (Shajatu - Pu, Huayleno - Pu), (Kculli - Pu, Granada - Pu, San

- Geronimo Huancavilicano - Pu), (Ancashino - Pu, Marcame - Ch)],
 (Altiplano - A, Confite Puneno - Pu, Capio Chico - Ch)},
 (Chaparreno - Pu, Oke - A, Negrito - Ch)
19. [(Negrito - Co, Cacao - V), (Negrito - V, Candela - E),
 (Pagaladroga - Pu, Guirua - Co)], {(Cariaco - V, Jora - Pu),
 [(Curugua Grande - Ch, Pojoso Chico - Bo), (Camba - Bo, Moroti -
 Pg)]}
 20. (Cariaco - Co, Chococeno - Co, Mochero - Pu), (Pojoso Chico - E,
 Chococeno - E)
 21. Montana - E, Clavo - Co, Morocho - E
 22. Cristal - Br, Cristal Sulino - A and U, Morocho - A) (Guaribero -
 V, Aleman - Pu), Bola Blanca - A
 23. (Dente Branco Paulista - Br, Dente Branco Rio Grandense - Br),
 (Tuxpeno - V, Argentino - Bo)
 24. Capia Blanco - A
 25. Coroico Blanco - Bo, Cristal Semi-Dentado - Pg
 26. (Chirimito - V, Enano - Bo, Enano - Pu), (Araguito - V, White
 Pop - Cu, White Dent - Cu)
 27. Pollo - Co, Confite Morocho - Pu
 28. (Pororo - Bo, Avati Pichinga Ihu - Pg), (Pira - V, Pira - Co,
 Polulo - Ch)
 29. (Pisincho - A, Pisankalla - Bo, Confite Puntigudo - Pu),
 (Curagua - Ch, Avati Pichinga - Pg), Chutucuno Chico - Ch
 30. Canguil - Ec, Imbricado - Co, Canguil Grueso - E
 31. Paro - Pu, Paru - Bo
 32. (Capio - Co, Blanco Harinoso Dentado - E, Cacahuacintle - M),
 (Cacao - Co, Alazon - Pu), Chillo - E
 33. (Coroico Amarillo - Bo, Entrelacado - Br, Moroti Precoce - Pg),
 (Coroico - Bo, Piricinco - Pu, Morado - Bo)
 34. Chullpi - Pu, Chulpi - Ch, Chulpi - A, Chuspillu - Bo*, Chulpi - E*
 35. Maiz Dulce - M
 36. Dulce Golden Bantam - Ch, Dulce Evergreen - Ch

*The addition of Chuspillu - Bo and/or Chulpi - E to this group
 makes the group distinctly more heterogeneous than the other groups.

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