hulls, and anthocyanin pigmentation in awns and stigmas. The leaves are darker green than those of 'L-202' (3), the currently predominant long-grain cultivar in California. Grains of A-301 are slightly longer than those of L-202. Rough rice kernels averaged 10.2 mm long, 2.67 mm wide, and 28.0 mg in weight, compared to 9.8 mm, 2.6 mm, and 27.0 mg for L-202. The mean length, width, and weight of brown rice kernels of A-301 are 8.3 mm, 2.3 mm, and 22.5 mg compared to 7.8 mm, 2.2 mm, and 21.5 mg for L-202. The mean milled kernel length, width, and weight are 7.6 mm, 21.1 mm, and 20.0 mg for A-301 compared to 7.3 mm, 22.2 mm, and 20.0 mg for L-202. A-301 grains have a light brown seed coat (bran), and colorless, nonglutinous, scented (similar to Delta) endosperm with amylose content of 232 mg g⁻¹ and intermediate starch gelatinization temperature as indicated by 17 g L⁻¹ KOH spreading score of 5. This amylose content is similar to that of typical southern USA long-grain cultivars (4) but the alkali spreading value is one scale higher. It does not cook as flaky as typical southern USA long-grain cultivars.

Head rice (whole kernel) yield from milling of A-301 averaged 54.0 and 56.6% in 1985 and 1986, respectively, from samples harvested at grain moisture contents ranging from 195 to 282 mg g⁻¹ in 1985, and 182 to 284 mg g⁻¹ in 1986. This is about 1 to 2% lower than that of L-202.

A-301 averaged 8790 kg ha⁻¹ compared to 9770 kg ha⁻¹ for M-302 at 120 mg g⁻¹ moisture in 10 tests conducted in cooperation with the University of California Cooperative Extension from 1982 to 1986. However, in five tests at the Rice Experiment Station, where shallow water was maintained during seedling establishment, A-301 averaged 10 450 kg ha⁻¹ compared to 10 380 kg ha⁻¹ for M-302.

A-301 has inferior seedling vigor and is more susceptible to sterility induced by low temperature at the microsporogenesis stage (about 10 to 14 days before heading) than other cultivars currently being grown in California. Therefore, it should be grown in the warmest rice growing area of California, and shallow water (about 10 cm) should be used during stand establishment and tillering.

Seedlings of A-301 are tolerant of the herbicides molinate (S-ethyl hexahydro-1 H-azepeine-1-carboxthio) and thiencarb, [S-(4-chlorophenyl) methyl diethylcarb amitioate] like other cultivars currently being grown. A-301 did not show significant differences from M-302 in reaction to stem rot (caused by Sclerotium oryzae Catt.) and aggregate sheath spot [caused by Rhizoctonia oryzae-sativa (Saw.) Mordue].

A-301 was jointly released by the California Co-operative Rice Research Foundation, the California Agricultural Experiment Station, and USDA-ARS. It was approved for certification by the California Crop Improvement Association in 1987. The initial foundation seed field contained slightly taller and later plants that were rogued. Application for plant variety protection of A-301 is not being made. Classes of seed will be breeder, foundation, registered, and certified. Breeder and foundation seed of A-301 will be maintained by the California Co-operative Rice Research Foundation, P.O. Box 306, Biggs, CA 95917.

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References and Notes

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REGISTRATION OF 'M-102' RICE

'M-102' medium-grain rice (Oryza sativa L.), (Reg. no. 74) (PI 505818) is a very early to early maturing, semidwarf medium-grain cultivar developed at the Rice Experiment Station, Biggs, CA, by the California Co-operative Rice Research Foundation. M-102 was tested in the University of California Cooperative Extension state wide tests with the experimental designation 84-Y-149.

M-102 is a pure line selection from the cross, R-5592, made in the winter of 1978-1979. The pedigree is 'M-201'/'M-101'. M-201 is early maturing and is the most widely grown of current California cultivars (1). M-101 is very early maturing and is currently grown in colder areas and at abnormally late seeding dates (3). M-102 is a product of pedigree selection, except that the F₁ population was a bulk of F₂ selections. A winter nursery in Hawaii was used to accelerate generation advance.

M-102 is photoperiod insensitive and heads about 5 days later than M-101 and 5 to 7 days earlier than M-201. M-102 has a 2-day longer grain-filling period since its grain moisture at harvest approximates that of 'M-202', which heads 2 days later (2). Average plant height of M-102 is about 1.5 cm taller than that of M-101. M-102 is more resistant to lodging than M-101 or M-202, averaging 6 vs. 55% and 16% for M-101 and M-102, respectively in 18 tests. M-102 has glabrous lemma, palea, and leaf blades, except that some hairs are found on the lemma keel and on leaf margins. M-102 is sparsely awned. No plant parts of M-102 show anthocyanin pigmentation.

Panicles of M-102 normally are exserted completely from the sheaths. The new cultivar has good seedling vigor, comparable to M-101. Reaction of M-102 to sterility caused by cool night temperatures 10 to 14 days before heading has been comparable to that of M-101. The earlier flowering M-101, however, provides an added escape mechanism from the effects of cool temperatures that intensify as the season progresses. M-102 in 10 tests was less susceptible (score of 5.2 vs. 6.5 on a scale of 1 to 10) than M-101 to stem rot (caused by Sclerotium oryzae Catt.). M-102 and M-101 are both moderately susceptible to aggregate sheath spot [caused by Rhizoctonia oryzae-sativa (Saw.) Mordue]. Reaction of M-102 to other diseases that are not prevalent in California is unknown.

Brown rice kernels of M-102 are slightly smaller than those of M-101, averaging 22.8 mg kernel⁻¹, 6.1 mm long, and 2.7 mm wide compared to 23.2 mg, 6.1 mm and 2.8 mm for M-101, respectively. Milled kernels of M-102 are translucent. Grains of M-102 have light brown pericarp, and white nonglutinous and nonaromatic endosperm. Results from the National Rice Quality Laboratory at Beaumont, TX, indicate that amylose makes up 175 to 190 mg g⁻¹ of the endosperm starch, which has a low gelatinization temperature, as indicated by an alkali spreading score of 6.9. These values are typical of U.S. medium-grain cultivars (4). Taste panels rated