UNIVERSITAS
GADJAH MADA
Keragaman Nucleolar Organizer Region dan Interstitial Telomeric Sequence Lima Spesies Cabai (Capsicum spp.)
Gala Arasy, Prof. Dr. Ir. Aziz Purwantoro, M.Sc.; Agus Budi Setiawan, S.P., M.Sc., Ph.D.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Albrecht, E., D. Zhang, A.D. Mays, R.A Saftner, and J.R. Stommel. 2012. Genetic diversity in *Capsicum baccatum* is significantly influenced by its ecogeographical distribution. BMC Genetics. 13:68.

Arasy, G. 2025. Keragaman Kariomorfologi Lima Spesies Cabai (*Capsicum* spp.). Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.

Aristya, G.R., B.S. Daryono, N.S.N. Handayani, dan T. Arisuryanti. 2015. Karakterisasi Kromosom Tumbuhan dan Hewan. 1st ed. Yogyakarta: Gadjah Mada University Press.

Bloom, S.E. dan C. Goodpasture. 1976. An improved technique for selective silver staining of nucleolar organizer regions in human chromosomes. Hum. Genet. 34:199-206.

Bolzan, A.D. 2017. Interstitial Telomeric Sequences in Vertebrate chromosomes: Origin, Function, Instability and Evolution. Mutation Research.

BPSB TPH Kalimantan Selatan. 2022. Cabai Tiung Asal Desa Uwie, Muara Uya, Tabalong.

Britton-Davidian J., B. Cazaux, dan J. Catalan. 2012. Chromosomal dynamics of nucleolar organizer regions (NORs) in the house mouse: micro-evolutionary insights. Heredity. 108: 68-74.

Bruschi, D.P. M. Rivera, A.P. Lima, A.B. Zúñiga, dan S.M. Recco-Pimentel. 2014. Interstitial Telomeric Sequences (ITS) and major rDNA mapping reveal insights into the karyotypical evolution of Neotropical leaf frogs species (*Phyllomedusa*, *Hylidae*, *Anura*). Molecular Cytogenetics. 7:22: 1-12.

Caperta, A.D., N. Neves, L. Morais-Cecílio, R. Malho, dan W. Viegas. 2002. Genome restructuring in rye affects the expression, organization and disposition of homologous rDNA loci. Journal of Cell Science. 115: 2839-2846.

Cawthon, R.M. 2002. Telomere measurement by quantitative PCR. Nucleic Acids Research. 30(10).

Cruz, M.V.R., J.D. Urdampilleta, E.R.F. Martins, dan E.A. Moscone. 2017. Cytogenetic markers for the characterization of *Capsicum annuum* L. cultivars. Plant Biosystems. 151(1): 84-91.

Flavell R.B. dan O'Dell, M. 1976. Ribosomal RNA genes on homoeologous chromosomes of groups 5 and 6 in hexaploid wheat. Heredity. 37:377-385.

Flavell R.B. dan O'Dell, M. 1979. The geznetic control of nucleolus formation in wheat. Chromosoma. 71: 135-152.

UNIVERSITAS
GADJAH MADA
Keragaman Nucleolar Organizer Region dan Interstitial Telomeric Sequence Lima Spesies Cabai (Capsicum spp.)
Gala Arasy, Prof. Dr. Ir. Aziz Purwantoro, M.Sc.; Agus Budi Setiawan, S.P., M.Sc., Ph.D.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Flowrenzhy, D. dan Harijati, N. 2017. Pertumbuhan dan produktivitas tanaman cabai Katokkon (*Capsicum chinense* Jacq.) di ketinggian 600 meter dan 1.200 meter di atas permukaan laut. Jurnal Biotropika. 5(2).

Ganal, M.W., N.L. Lapitan, dan S.D. Tanksley. 1991. Macrostucture of the tomato telomeres. Plant Cell 3:87-94.

Goodfellow, S.J. dan and J.C.B.M. Zomerdijk. 2013. Basic mechanisms in RNA Polymerase I Transcription of the ribosomal RNA Ggenes. Chapter 10. Bangalore, India.

Goodpasture, C. dan S.E. Bloom. 1975. Visualization of nucleolar organizer regions in mammalian chromosomes using silver staining. Chromosoma (Berl.). 53: 37-50.

Guzman-Markevich, K., A.S. Roco, A. Ruiz-García, dan M. Bullejos. 2022. Cytogenetic analysis in the toad species bufo spinosus, bufotes viridis and epidalea calamita (*Anura*, *Bufonidae*) from the Mediterranean area. Genes. 13)1475):1-15.

Heliot, L., H. Kaplan, L. Lucas, C. Klein, A. Beorchia, M. Doco-Fenzy, M. Menager, M. Thiry, M.F. O'Donohue, dan D. Ploton. 1997. Electron tomography of metaphase nucleolar organizer regions: evidence for a twisted-loop organization. Mol Biol Cell. 8: 2199-2216.

Hizume, M., S. Sato, dan A. Tanaka. 1980. A highly reproducible method of nucleolus organizing regions staining in plants. Stain Technology. 55 (2): 87-90.

Indhirawati, R. dan A. Purwantoro. 2018. Telomere length determination based on different sex and leaf development of snake fruit (*Salacca zalacca* GART. VOSS.) revealed by polymerase chain reaction. Ilmu Pertanian (Agricultural Science). 3(3): 146-152.

Jimenez, R., M. Burgos, dan R. Diaz de la Guardia. 1988. A study of the Ag-staining significance in mitotic NOR's. Heredity 60:125-127.

Kim, S., D. Lee, dan A.L. Rayburn. 2015. Analysis of active nucleolus organizing regions in polyploid prairie cordgrass (*Spartina pectinata* Link) by silver staining. Cytologia. 80(2): 249-258

Kirov, I, L. Khrustaleva, K.V. Laere, A. Soloviev, S. Meeus, D. Romanov, I. Fesenko. 2017. DRAWID: user-friendly java software for chromosome measurements and idiogram drawing. Comparative Cytogenetics, 11(4): 747-757.

Known Your Seed. Diakses pada 4 Juli 2026. Diakses dari https://knownyouseed.com/product/red-star/# .

Kodama, Y., C.Y., Michihiro, dan S. Motomichi. 1980. An improved silver staining technique for nucleolus organizer regions by using nylon cloth. Jpn. J. Human Genet, 25: 229-233.

UNIVERSITAS
GADJAH MADA
Keragaman Nucleolar Organizer Region dan Interstitial Telomeric Sequence Lima Spesies Cabai (Capsicum spp.)
Gala Arasy, Prof. Dr. Ir. Aziz Purwantoro, M.Sc.; Agus Budi Setiawan, S.P., M.Sc., Ph.D.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Lacadena, J.R., M.C. Cermefio, J. Orellana, dan J.L. Santos. 1984. Evidence for wheat-rye nucleolar competition (amphiplasty) in triticale by silver-staining procedure. Theor Appl Genet. 67: 207-213.

Lachowska, D., M. Rozek, dan M. Holecova. 2005. C-banding karyotype and NORs analyse in eight species of *Bary peithes* Duval from Central Europe (Coleoptera, Curculionidae, Entiminae). Caryologia. 58(3): 274-280.

Lavania, U.C. dan S. Srivastava. 1999. Quantitative delineation of karyotype variation in Papaver as a measure of phylogenetic differentiation and origin. Current Science Association. 77(3): 429-435.

Lima-Brito, J. H. Guedes-Pinto, dan J.S. Heslop-Harrison. 1998. The activity of nucleolar organizing chromosomes in multigeneric F1 hybrids involving wheat, triticale, and tritordeum. Genome 41: 763-768.

Liu, W., dan L. Fredga. 1999. Telomeric (TTAGGG)n sequences are associated with nucleolus organizer regions (NORs) in the wood lemming. Chromosome Research. 7: 235-240.

M.C. Cermefio, J. Orellana, J.L. Santos, dan J.R. Lacadena. 1984. Nucleolar organizer activity in wheat, rye and derivatives analyzed by a silver-staining procedure. Chromosoma (Berl). 89:370-376.

Maravilla, A.J., M. Rosato, dan J.A. Rosselló. 2021. Interstitial Telomeric-like Repeats (ITR) in seed plants as assessed by molecular cytogenetic techniques: A review. Plants.10(2541).

McStay, B. 2016. Nucleolar organizer regions: genomic 'dark matter' requiring illumination. Genes & Development. 30:1598-1610.

Meyne, J., R.J. Baker, H.H. Hobart, T.C. Hsu, O.A. Ryder, O.G. Ward, J.E. Wiley, D.H. Wurster-Hill, T.L. Yates, dan R.K. Moyzis. 1990. Distribution of non-telomeric sites of the (TTAGGG)n telomeric sequence in vertebrate chromosomes. Chromosoma. 99:3-10

Mňahončáková, E., Vergun, O., Grygorieva, O., Sedláčková, V.H., Ivanišová, E., Šramková, K.F., Hrúzová, M., dan Brindza, J. 2021. Evaluation of the antioxidant potential of *Capsicum annuum* L., *C. baccatum* L. and *C. chinense* Jacq. cultivars. Acta Sci. Pol. Technol. Aliment. 20(2): 223-236.

Moscone, E.A., J. Loidl, F. Ehrendorfer, dan A.T. Hunziker. 1995. Analysis of active nucleolus organizing regions in *Capsicum* (*Solanaceae*) by silver staining. American Journal of Botany. 82(2): 276-287.

Moscone, E.A., Scaldaferro, M.A., Grabiele, M., Romero, M.V. Debat, H. Seijo, J.G., Acosta, M.C., Daviña, J.R., Barboza, G.E., dan Ducasse, D.A. 2011. Genomic characterization of the chili peppers (*Capsicum solanaceae*) germplasm by classical and molecular cytogenetics. International Atomic Energy Agency, Vienna.

UNIVERSITAS
GADJAH MADA
Keragaman Nucleolar Organizer Region dan Interstitial Telomeric Sequence Lima Spesies Cabai (Capsicum spp.)
Gala Arasy, Prof. Dr. Ir. Aziz Purwantoro, M.Sc.; Agus Budi Setiawan, S.P., M.Sc., Ph.D.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Nankolongo, N.M., O.B. Yllano, L.D. Arce, N.J.V. Vegafria, E.A. Evangelista, F.A. Esplana, L.H.R. Catolico, M.C. L. Pedro, dan E.E. Tubilag. 2023. Genetics and genomics of *Capsicum*: valuable resources for *Capsicum* development. IntechOpen.

Pickersgill, B. 1991. Cytogenetics and Evolution of *Capsicum* L in Developments in Plant Genetics and Breeding. Netherlands: Elsevier Science Publishers, Volume 2, Part B, Pages 139-160.

Pillay, M., dan M.T.V. Adekele. 2001. Silver staining of *Musa* L. chromosomes. Cytologia 66: 33-37.

Prokopowich C.D., T.R. Gregory, T.J. Crease. 2003 The correlation between rDNA copy number and genome size in eukaryotes. Genome. 46(1): 48-50.

Richards E.J. 1995. Plant Telomeres. Cold Spring Harbor Laboratory Press. Chapter 13, hlm 371-387.

Rita, R., Delyuzar, L.I. Laksmi. 2020. Ekspresi AgNOR dan ekspresi Ki-67 pada grading adenokarsinoma prostat. Maj Patol Indonesia. 29(3): 145-150.

Ruschoff, J., K. Plate, A. Bittinger, dan C. Thomas. 1989. Nucleolar Organizer Regions (NORs) basic concepts and practical. Application in Tumor Pathology. Path. Res. Pract. 185:878-885.

Scaldaferro, M.A., M.V.R. Cruz, N.M. Cecchini, dan E.A. Moscone. 2016. FISH and AgNor-mapping of the 45S and 5S rRNA genes in wild and cultivated *Capsicum* species (*Solananceae*).

Schreck, R.R. dan C.M. Distèche. 1994. Current protocols in human. Genetics. 4(2):1-36.

Schrumpfová, P.P., M. Fojtová, dan J. Fajkus. 2019. Telomeres in plants and humans: Not so different, not so similar. Cells. 8(58):1-31.

Schwarzacher, H.G., A.V., Mikelsaar, dan W. Schnedl. 1978. The nature of the Ag-staining of nucleolus organizer regions. Cytogenetics Cell Genetic. 20:24-39.

Shaw, P.J. dan P.C. McKeown. 2011. The Structure of rDNA Chromatin. Chapter 3. The Nucleolus Protein Reviews. 15:43-55.

Shippen, D.E. dan McKnight, T.D. 1996. Telomere, telomerase, and plant development. Review trend in plant science. 3(4): 126-130.

Srinivas, N. R. Rachakonda, dan R. Kumar. 2020. Telomeres and telomere length: A general overview. Cancers. 12:558.

Stack, S., L. Herickhoff, J. Sherman, dan L. Anderson. 1991. Staining plant cells with silver. I. The salt-nylon technique. Biotechnic & Histochemistry. 69-78.

Stack, S.M. 1991. Staining plant cells with silver. Genome. 34: 1-9.

UNIVERSITAS
GADJAH MADA
Keragaman Nucleolar Organizer Region dan Interstitial Telomeric Sequence Lima Spesies Cabai (Capsicum spp.)
Gala Arasy, Prof. Dr. Ir. Aziz Purwantoro, M.Sc.; Agus Budi Setiawan, S.P., M.Sc., Ph.D.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Stults D.M., M.W. Killen, E.P. Williamson, J.S. Hourigan, H.D. Vargas, S.M. Arnold, J.A. Moscow, A.J. Pierce. 2009. Human rRNA gene clusters are recombinational hotspots in cancer. Cancer Res. 69: 9096-9104.

Vaquero-Sedas M.I. dan M.A. Vega-Palas. 2014. A nested pcrtelomere fusion assay highlights the widespread end-capping protection of *Arabidopsis* CTC1. International Journal of Molecular Sciences. 25(672): 1-12.

Vicari, M.R., D.P. Bruschi, D.C. Cabral-de-Mello, dan V. Nogaroto. 2022. Telomere organization and the interstitial telomeric sites involvement in insects and vertebrate chromosome evolution. Genetics and Molecular Biology. 45(3): 1-22.

Watanabe, K., T. Yahara, T. Denda, dan K. Kosuge. 1999. Chromosomal evolution in the genus Brachyscome (Asteraceae, Astereae): statistical tests regarding correlation between changes in karyotype and habit using phylogenetic information. J. Plant Res. 112: 145-161.

Wijaya, C.H., M. Harda, dan B. Rana. 2020. Diversity and Potency of *Capsicum* spp. Grown in Indonesia. IntechOpen.

Williams, J.G.K., A.R. Kubelik, K.J. Livak, J.A.R., dan S.V. Tingey. 1990. DNA polymorphisms amplified by arbitrary primers are useful as genetic markers. Nucleic Acids Research. 18(22): 6531-6535.

Yu, H.J., Y.H. Byun, dan Chul-Kee Park. 2024. Techniques for assessing telomere length: A methodological review. Computational and Structural Biotechnology Journal. 23:1489-1498.